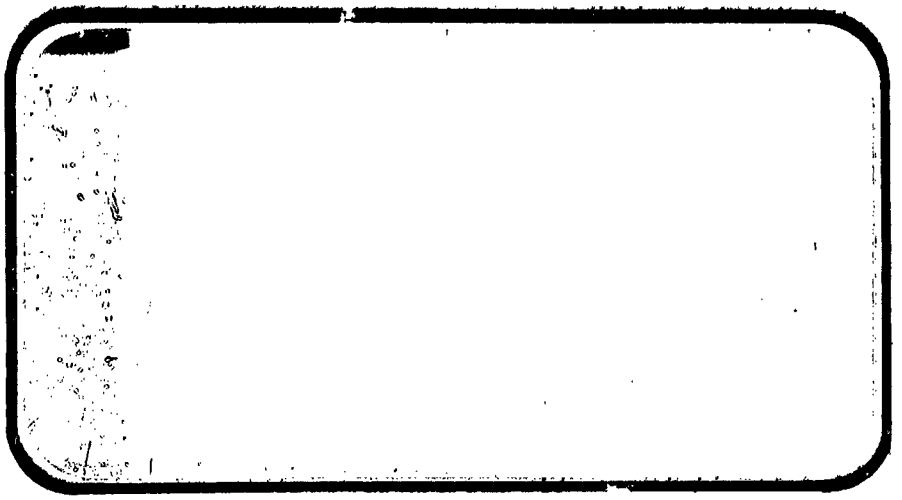

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT

JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANagement services

SPACE DIVISION CHRYSLER CORPORATION

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EFFECTS OF REACTION CONTROL SYSTEM JET SIMULATION ON THE STABILITY AND CONTROL CHARACTERISTICS OF A 0.015 SCALE SPACE SHUTTLE ORBITER MODEL TESTED IN THE LANGLEY RESEARCH CENTER UNITARY PLAN WIND TUNNEL

(ØA70)

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New Orleans, La. 70189

for

Engineering Analysis Division

Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number: UPWT 1043
NASA Series No.: ØA70
Test Date: July 22 - July 27, 1973
Model No.: 42-0

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EFFECTS OF REACTION CONTROL SYSTEM JET SIMULATION ON THE STABILITY AND CONTROL CHARACTERISTICS OF A 0.01C SCALE SPACE SHUTTLE ORBITER MODEL TESTED IN THE LANGLEY RESEARCH CENTER UNITARY PLAN WIND TUNNEL

By

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ABSTRACT

An experimental investigation was performed in the Langley Research Center Unitary Plan Wind Tunnel (Test OA70) to obtain the detailed effects that RCS jet flow interactions with local orbiter flow field have on supersonic stability and control characteristics of the space shuttle orbiter. Six-component force data were obtained through an angle-of-attack range from 15 to 35 degrees at angles of sideslip of 0, +5, and -5 degrees. The test was conducted with yaw jet simulation at free-stream Mach numbers of 2.5 and 4.6, simulating SSV re-entry flight conditions at these Mach numbers. In addition to the basic force measurements, fuselage base pressures and pressures on the non-metric RCS pods were obtained. Model 3.0-0 was used for this test.

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(δ_e = -40°)	A	5-6
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SCHEDULE OF PLOTTED COEFFICIENTS:

A) CN, CLM, CA, CY, CYN, CBL vs. ALPHA

INTRODUCTION

An experimental investigation was performed to determine interaction effects of the Reaction Control System (RCS) exhaust flow on the aerodynamic characteristics of the Space Shuttle Vehicle (SSV) orbiter. The test article was an 0.015 scale representation of the SSV orbiter configuration 3 (model 42-0). The tests were performed in the Langley Research Center Unitary Plan Wind Tunnel to simulate two re-entry trajectory points. Nominal test conditions are given below.

Mach	q_∞ PSF	Re/ft	Stagnation Temperature, °F
2.5	374	1.72×10^6	150
4.6	202	1.72×10^6	175

Complete simulation of the RCS jet/free-stream interaction would require duplication of the trajectory free-stream conditions as well as mass flow ratio, momentum pressure, thrust and plume shape of the RCS jets. However, utilizing the Secondary Injection Momentum Principle for the injection of a jet perpendicular to the free-stream flow, only two dominant parameters significantly affect the interaction forces; jet momentum and jet pressure. Mass flow ratio and jet plume shape are considered to be less important parameters. Thus, design of the model nozzles was based entirely on matching jet to free-stream pressure ratio and momentum ratio.

RCS flow was simulated by blowing jets of cold air from non-metric nozzles attached to the model support sting in proximity to the fuselage base. Momentum ratio and pressure ratio simulation was obtained by regulating nozzle plenum pressure (as specified by the nozzle bench calibration.)

Nozzle thrust was measured using a single component strain gauge balance. The nozzle was calibrated at near vacuum conditions (because of its high expansion ratio) and corrected to total vacuum conditions. Mass flow rates were measured using a calibrated orifice meter. A plot of both measured and theoretical thrust as a function of model plenum pressure is presented in Figure 2.f. The nozzle, which simulated an RCS yaw control firing configuration, was tested in conjunction with various elevon and body flap control settings.

Six-component force data were measured on the complete model using the LaRC 1.125-inch diameter balance number 834, mounted on LaRC sting No. 77. Wind-off balance data (at tunnel operating pressure) were recorded with RCS jets on for each elevon/body flap configuration tested to determine if direct impingement effects existed.

With the tunnel flowing, data were recorded thru an angle of attack range from 15° to 35°, in 5° increments, with RCS flow either off or on for each run. An RCS-on run was made immediately after each RCS-off run, for a given configuration, to obtain an RCS increment independent of any balance shifts due to temperature.

The model had six pressure taps, located in the following positions: One tap in the RCS plenum chamber wall, three taps on the nozzle surfaces, one tap on the nozzle base, and one on the fuselage base. Pressure tap locations are shown in Figure 2.d.

Model surface flow pattern resulting from combined tunnel and RCS flows were obtained using black light oil flow techniques. Schlieren

photographs were taken during all runs with $\delta_e = -20$ and $\delta_e = -40$ at angles of attack of 15, 25, and 35 degrees.

Two oil-flow runs (Figures 3.d. and e.) and 62 valid force runs were made during the test period of July 22 thru 27, 1973. A summary of configurations tested and test conditions for each run is given in table II.

NOMENCLATURE
General

SYMBOL	DATCOM SYMBOL	DEFINITION
a		speed of sound; m/sec, ft/sec
C_p	CP	pressure coefficient; $(p_l - p_\infty)/q$
M	MACH	Mach number; V/a
p		pressure; N/m^2, psf
q	Q(NOM) Q(PSF)	dynamic pressure; $1/2\rho V^2$, N/m^2, psf
V		velocity; m/sec, ft/sec
α	ALPHA	angle of attack, degrees
β	BETA	angle of sideslip, degrees
ψ	PSI	angle of yaw, degrees
ϕ	PHI	angle of roll, degrees
ρ		mass density; kg/m^3, $slugs/ft^3$
		Reference & C.G. Definitions
A_b		base area; m^2, ft^2
b	BREF	wing span or reference span; m, ft
c.g.		center of gravity
ℓ_{REF} $\bar{c}$	LREF	reference length or wing mean aerodynamic chord; m, ft
S	SREF	wing area or reference area; m^2, ft^2
	MRP	moment reference point
	XMRP	moment reference point on X axis
	YMRP	moment reference point on Y axis
	ZMRP	moment reference point on Z axis

SUBSCRIPTS

b	base
l	local
s	static conditions
t	total conditions
∞	free stream

NOMENCLATURE (Continued)

Body-Axis System

SYMBOL	CARPAC SYMBOL	DEFINITION
C_N	CN	normal-force coefficient; $\frac{\text{normal force}}{qS}$
C_A	CA	axial-force coefficient; $\frac{\text{axial force}}{qS}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_{A_b}	CAB	base-force coefficient; $\frac{\text{base force}}{qS}$ $-A_b(p_b - p_\infty)/qS$
C_{A_f}	CAF	forebody axial-force coefficient, $C_A - C_{A_b}$
C_m	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS\ell_{REF}}$
C_n	CYN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qSb}$
C_ℓ	CRL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qSb}$
		Stability-Axis System
C_L	CL	lift coefficient; $\frac{\text{lift}}{qS}$
C_D	CD	drag coefficient; $\frac{\text{drag}}{qS}$
C_{D_b}	CDB	base-drag coefficient; $\frac{\text{base drag}}{qS}$
C_{D_f}	CDF	forebody drag coefficient; $C_D - C_{D_b}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_m	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS\ell_{REF}}$
C_n	CYN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qSb}$
C_ℓ	CRL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qSb}$
L/D	L/D	lift-to-drag ratio; C_L/C_D
L/D_f	L/DF	lift to forebody drag ratio; C_L/C_{D_f}

NOMENCLATURE (CONTINUED)

ADDITIONAL NOMENCLATURE

SYMBOL	DATAMAN SYMBOL	DEFINITION
A_{bm}		OMS pod base area, in^2
ℓ_B		orbiter reference body length, in.
P_J	PO-JET	nozzle plenum chamber pressure, psia
P_{static}		static or ambient pressure, psia
R_e/ft	RN/L	unit Reynolds number, per feet
X_{cp}/ℓ_B	XCP/L	longitudinal center of pressure location, fraction of body length
ΔAF		incremental axial force due to model RCS flow direct impingement on metric model components, lbs.
ΔNF		incremental normal force due to model RCS flow direct impingement on metric model components, lbs.
ΔPM		incremental pitching moment due to model RCS flow direct impingement on metric model components, in-lb.
ΔRM		incremental rolling moment due to model RCS flow direct impingement on metric model components, in-lb.
ΔSF		incremental side force due to model RCS flow direct impingement on metric model components, lbs.
ΔYM		incremental yawing moment due to model RCS flow direct impingement on metric model components, in-lb.
δ_a	AILRON	aileron, total aileron deflection angle, degrees, (left aileron - right aileron)/2.

NOMENCLATURE (CONTINUED)

SYMBOL	DATAMAN SYMBOL	DEFINITION
δ_{BF}	BDFLAP	body flap deflection angle, degrees
δ_e	ELEVTR	elevator deflection angle, degrees
δ_R	RUDDER	rudder deflection angle, degrees
δ_{RF}	RUDFLR	rudder flare angle, degrees
δ_{bf}	BDFLAP	flap, surface deflection angle, positive deflection, trailing edge down; degrees
C_{p16}	CPB	model base pressure coefficient
C_{p17}	CP17	right half nozzle surface pressure coefficient
C_{p18}	CPBM	right half nozzle base pressure coefficient
C_{p19}	CP19	left half nozzle horizontal surface pressure coefficient
C_{p20}	CP20	left half nozzle lower surface pressure coefficient
C_{psc}	CPSC	sting cavity pressure coefficient
P_∞	PINF	freestream static pressure, psia

CONFIGURATION INVESTIGATION

The test article (provided by Rockwell) was a 0.015 scale model (42-0) of the VL70-000139B definition of the SSV orbiter Configuration 3. A three-view drawing of the model showing the principal dimensions, photographs of the model installation in the tunnel, and the RCS hardware are shown in Figures 2 and 3.

The model was constructed of Armco 17-4 stainless steel and was comprised of the following parts: fuselage, canopy, wing and cuff, vertical tail and orbital maneuvering system (OMS) pods. Elevon deflections of 0°, -20° and -40°, body flap deflections of 0° and -14.25°, and a rudder with a 40° speed brake deflection were tested.

The RCS plenum was attached to the sting at the base of the model (termed non-metric installation); air loads acting on it and forces produced by the RCS jet were not measured by the balance. One nozzle (N_{19}), simulating the RCS firing for yaw control was mounted on the left side of the plenum; a nozzle with a plug inserted was mounted on the right side of the plenum chamber. The yaw nozzle defined in Figure 2.a., was built and calibrated by General Dynamics Convair of San Diego. The nozzle blocks were mounted in proximity to the OMS pods as shown in Figure 2.a.

The following nomenclature was used to designate the model components:

COMPONENT	DEFINITION
B_{19}	Near vehicle configuration 3 (139B) fuselage of the Rockwell International SSV orbiter configuration (VL70-000139B)
C_7	Basic vehicle configuration 3 (139) canopy (VL70-000139)

COMPONENT	DEFINITION
E_{23}	Elevon on vehicle configuration 3 (139B) wing (VL70-000139B)
F_5	Basic vehicle configuration 3 (139) body flap (VL70-000139B)
M_6	Modified OMS-RCS pod for the Rockwell International SSV configuration 3 (VL70-000139B)
N_{19}	Twin LH yaw nozzle sized to simulate the center two prototype 3 configurations (VL70-000140A) RCS yaw engines when tunnel Mach No. equals M for prototype trajectory.
O_{139B}	Complete orbiter configuration consisting of $B_{19}C_7F_5M_6V_7R_5W_{107}E_{23}$
R_5	Basic vehicle configuration 3 (139) rudder for vertical tail (VL70-000139)
V_7	Basic vehicle configuration 3 vertical tail (VL70-000139)
W_{107}	Vehicle configuration 3 (139B) wing(VL70-000139B)

A general arrangement configuration drawing is shown in Figures 2.a

RCS NOZZLE CALIBRATION

Calibration of the RCS nozzle was performed in the vacuum chamber at Convair Aerospace Division, San Diego from July 2 to July 9, 1973, to establish nozzle thrust and mass flow characteristics as a function of nozzle plenum pressure.

The nozzle assemblies were mounted on a 12 pound capacity single component strain gauge force balance in the 5-foot vacuum chamber to obtain direct measurement of thrust. The measured nozzle thrust data were corrected to total vacuum conditions.

Dial gauge pressure readings and regulator settings for selected flow rates were recorded and used as an operating guide during the tunnel test.

Approximate flow rates were set by selecting increments of RCS plenum pressure from a curve of P_j versus estimated weight flow. The actual flow rate was calculated using the measured pressure drop across an orifice plate built to ASME specifications for which the flow coefficient had been determined by prior calibration.

Calibration results for the RCS yaw nozzle (N_{19}) are shown in Figure 2.f.

TEST FACILITY DESCRIPTION

The Langley Unitary Plan Wind Tunnel is under the direction of the High-Speed Aircraft Division at NASA LaRC. The tunnel is used for force, moment, pressure-distribution, and heat-transfer studies. The test medium is air. Model mounting consists of various sting arrangements with axial and lateral movement, and side-wall support. The tunnel is of the continuous-flow, asymmetric sliding-block type. There are two test sections, Nos. 1 and 2, each 4 feet square and 7 feet long. Test section No. 2 used for these tests has a Mach number range of 2.29 to 4.63. The dynamic pressure (PSF) and unit Reynolds number (per foot) range for the lower Mach number are 120 to 1260 and 0.76×10^6 to 5.5×10^6, respectively. For the maximum Mach number these ranges are 95 to 905 and 0.83 to 10^6 to 7.78×10^6, respectively. Normal operating temperature for the tunnel is 150°F, except at Mach numbers above 3.75 where it is 175°F.

DATA REDUCTION

Force and moments measured by the orbiter internal strain gauge balance were transferred to body and stability axes and reduced to dimensionless coefficients using standard data reduction methods. Corrections applied to the data include model static weight tare, balance and sting deflection and tunnel flow inclination. No adjustments were made to axial or drag coefficients for model base drag.

The following reference dimensions and constants were used for data reduction:

SYMBOL	DEFINITION	VALUE
b	Span, wing	14.050 in.
X_{CG}	Reference C.G.	12.58 in.
Z_{CG}	Reference C.G.	FRL (Z = 6.00)
CL BAL X	Center, balance force, measured from X_O = 0, See Figure 2.a.	17.279 in
CL BAL Z	Centerline, balance	W.L. 5.85 in.
$\bar{c}$	MAC, wing	7.122 in.
ℓ_B	Reference body length	19.35 in.
S	Area, wing (ref.)	0.605 ft^2

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Holdaway, George H.; Polek, Thomas E; and Kemp, Joseph H. Jr.: Aerodynamic Characteristics of a Blunt Half-Cone Entry Configuration at Mach Numbers of 6.2, 7.4, and 10.4, NACA Report TMX-682.

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Lines Control Aft Body and OMS Pod, Rockwell Drawing No. VL70-000094A.

Orbiter Lines, Rockwell Drawing No. VL70-000139B.

Model Assembly and Details 139 and 139B Lines SSV Orbiter, Rockwell Drawing No. SS-A-00106.

Details and Assembly Wing and Vertical 0.015-Scale SSV, Rockwell Drawing No. SS-A-00107.

3.5-Foot Hypersonic W.T. Open Throat Model Support 1.0-Inch Balance Sting, NASA/ARC Drawing No. A13911D60.

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Assembly and Details RCS Power Orbiter Force Model 0.015-Scale, G/D Convair Drawing No. WT-72-108102.

Pretest Information for Test 0A70 of the 0.015-Scale Space Shuttle Orbiter Configuration 3A in the Langley Research Center UPWT to Determine Effects of RCS Jet Flow Field Interactions on the Aerodynamic Characteristics, Rockwell International Report SD73-SH-0191, July 1973.

TABLE I

TEST : 0A70 (LaRC UPWT 1043) DATE :

TEST CONDITIONS

MACH NUMBER	REYNOLDS NUMBER (per unit ft)	DYNAMIC PRESSURE (pounds/sq. ft)	STAGNATION TEMPERATURE (degrees Fahrenheit)
2.5	1.72×10^6	374	150
4.6	1.72×10^6	202	175

BALANCE UTILIZED: LaRC 1.125 inch dia no. 834

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF	300 lb	1/2 % F.S.	
SF	200 lb.	"	
AF	60 lb	"	
PM	1000 in.-lb.	"	
RM	100 in.-lb.	"	
YM	400 in.-lb.	"	

COMMENTS:

TABLE II.

TEST: LARC UPWT-1043 — DATA SET/RUN NUMBER COLLATION SUMMARY — DATE:

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES M	Re/ft	δ_e	δ_{BF}	δ_{RF}	NOMINAL RCS PLENUM PRESSURE ~ P_j ~ PSIA 0	64	70	164	226	415	
	$B_{19}C_7F_5M_8V_7R_5W_{107}E_{23}N_{19}$	-	-	-	-	0	0	40°		21	21	21	21		DIRECT IMPINGEMENT
		-	-	-	-	-20	-14.2			62	62	62	62		FORCE DATA (SEE TABLE IV)
RPV001		A	-5	2.5	1.72	0	0		02	03			04		
02			0						05	06			07		
03			5						08	09			10		
04			-5			-20	-14.2		53	54			55		
05			0						56	57			58		
06			5						59	60			61		
07			-5			-40			22	23			24		
08			0						28	29			30		
09			5						25	26			27		
10			-5	4.6		0	0		11		12	13			
11			0						14		15	16		17	
12			5						18		19	20			
13			-5			-20	-14.2		44		45	46			
14			0						47		48	49			
15			5						50		51	52			

TEST RUN NUMBERS

3 7 13 19 25 31 37 43 49 55 61 67 75 75

* BETA, IGN, IGA, IGLM, IGBL, IGYN, IGY, IGL, IGD, IGLD, PROJECT, SCA, 1.0

α OR β SCHEDULES

COEFFICENTS

A: α = 15, 20, 25, 30, 35 DEG.

IDVAR(1) IDVAR(2) NDV

*COEF. FOR ADD'L OUTPUT (PROJECTION DATA IN APPENDIX A) CPF, CPB, CPSC, CPBM, CP17, CP19, CP20, FINE

TABLE II. (Concluded)

TEST: LARC UPWT - 1043

DATA SET/RUN NUMBER COLLATION SUMMARY

DATE:

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	M	Re/ft	δ_e	δ_{BF}	δ_{RF}	0	64	70	164	225	415
RPV016	$B_{19}C_7F_5M_6V_7R_5W_{107}E_{23}N_{19}$	A	-5	4.6	1.72	-40	-14.2	40°	31		32	33		
17	↓	↓	0	↓	↓	↓	↓	↓	34		35	36		
18	↓	↓	5	↓	↓	↓	↓	↓	37		39	40		

NOMINAL RCS PLENUM PRESSURE ~ P_j ~ PSIA (TEST RUN NUMBERS)

NOTES: SCHLIEREN PHOTOS AT α = 15, 25, & 35 FOR ALL RUNS WITH δ_e = - 20 AND δ_e = -40

RUN 63: OIL FLOW AT M = 2.5, δ_e = - 20, α = 25°

RUN 64: OIL FLOW AT M = 4.6, δ_e = - 20, α = 25°

RUN 65: OIL FLOW AT M = 4.6, δ_e = - 40, α = 25° } NO PHOTOS, CAMERA NOT OPERATED CORRECTLY

RUN 66: OIL FLOW AT M = 2.5, δ_e = - 40, α = 25° }

COEFFICIENTS: CN, CA, CLM, CBL, CYN, CY, CL, CD, L/D

α OR β SCHEDULES: A: α = 15, 20, 25, 30, 35 DEG.

TABLE III. MODEL DIMENSIONAL DATA

MODEL COMPONENT: BODY - B19

GENERAL DESCRIPTION: Fuselage, Configuration 3, per Rockwell Lines VL70-000139B.

NOTE: Identical to B17 except forebody.

Model Scale = 0.015

DRAWING NUMBER: VL70-000139B

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Length - IN.	1290.3	19.35450
Max. Width - IN.	267.6	4.01400
Max. Depth - IN.	244.5	3.66750
Fineness Ratio	4.82175	4.82175
Area - FT^2		
Max. Cross-Sectional	386.67	0.08700
Planform		
Wetted		
Base		

TABLE III. MODEL DIMENSIONAL DATA (Continued)

MODEL COMPONENT: Canopy - C7

GENERAL DESCRIPTION: Configuration 3 per Rockwell Lines VL70-000139

Model Scale = 0.015

DRAWING NUMBER VL70-000139

DIMENSION:	FULL SCALE	MODEL SCALE
Length (X_o = 433 to X_o = 670) - in. FS	237	3.555
Max Width		
Max Depth (Z_o = to Z_o = 501) - in FS		
Fineness Ratio		
Area		
Max Cross-Sectional		
Planform		
Wetted		
Base		

TABLE III. MODEL DIMENSIONAL DATA (Continued)

MODEL COMPONENT: ELEVON - E23

GENERAL DESCRIPTION: Configuration 3 for W107 Rockwell Linen

VL70-0001393, data for (1) of (2) aidon

Model Scale = 0.015

DRAWING NUMBER: VL70-000139B

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area - FT^2	205.52	0.04624
Span (equivalent) - IN.	353.34	5.30010
Inb'd equivalent chord	114.78	1.72170
Outb'd equivalent chord	55.00	0.82500
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	.208	.208
At Outb'd equiv. chord	.400	.400
Sweep Back Angles, degrees		
Leading Edge	0.00	0.00
Tailing Edge	-10.24	-10.24
Hingeline	0.00	0.00
Area Moment (Normal to hinge line)- FT^3 Product of Area Moment	1548.07	0.34832

TABLE III. MODEL DIMENSIONAL DATA (Continued)

MODEL COMPONENT: F5 Body Flap

GENERAL DESCRIPTION: 3 Configuration per Rockwell Lines VL70-000139

Scale Model = 0.015

DRAWING NUMBER VL70-000139

DIMENSION:	FULL SCALE	MODEL SCALE
Length - in	84.70	1.27050
Max Width - in	267.6	4.01400
Max Depth		
Fineness Ratio		
Area - Ft^2		
Max Cross-Sectional		
Planform	142.5	0.03206
Wetted		
Base	38.0958	0.00857

TABLE III. MODEL DIMENSIONAL DATA (Continued)

MODEL COMPONENT : NOZZLE - N19

GENERAL DESCRIPTION : Basic configuration 3A (VL70-000139B OMS Nozzles with Cold Jet Simulation of Yaw Control (Lateral Thrust) at Mach 10.3

Entry Condition

MODEL SCALE = 0.015

DRAWING NUMBER :

DIMENSIONS :	FULL SCALE	MODEL SCALE
Freestream Mach No. 10.3		
No. of nozzles (Left Side Only	2	2
Expansion Ratio	--	10.81
Diameter - in.		
Exit	Direct Scaling No Applicable	0.1440
Throat	--	0.0437
Area - IN^2.		
Exit		.01629
Throat		.00151
Thrust Centerline		
X	1533.0	22.995
Y	--	--
Z	472.5	7.087

TABLE III. MODEL DIMENSIONAL DATA (Continued)

MODEL DIMENSIONAL DATA

MODEL COMPONENT : OMS POD M_6

GENERAL DESCRIPTION : BASIC CONFIGURATION 3A OMS PODS WITH DETACHED RCS NOZZLE

NOTE: HOUSING TO MAKE THE RCS NON METRIC.

DRAWING NUMBER : VL70-000139B

MODEL SCALE 0.015

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length IN.	346.0	5.1900
Max Width	108.0	1.620
Max Depth	113.0	1.695
Fineness Ratio		
Area		
Max. Cross-Sectional		
Planform		
Wetted		
Base		

TABLE III. MODEL DIMENSIONAL DATA (Continued)

MODEL COMPONENT: RUDDER - R5

GENERAL DESCRIPTION: 2A, 3 and 3A Configuration per Rockwell Lines VL70-000095

Model Scale = 0.015

DRAWING NUMBER: VL70-000095

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area - FT^2	106.38	0.02394
Span (equivalent) - IN.	201.0	3.01500
Inb'd equivalent chord	91.585	1.37377
Outb'd equivalent chord	50.833	0.76249
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	0.400	0.400
At Outb'd equiv. chord	0.400	0.400
Sweep Back Angles, degrees		
Leading Edge	34.83	34.83
Tailing Edge	26.25	26.25
Hingeline	34.83	34.83
Area Moment (Normal to hinge line)- FT^3 Product of Area and Mean Chord	526.13	0.00178

TABLE III. MODEL DIMENSIONAL DATA (Continued)

MODEL COMPONENT: VERTICAL - V7

GENERAL DESCRIPTION: Centerline vertical tail, doublewedge airfoil with rounded leading edge.

NOTE: Same as V5, but with recirculator housing removed.

Model Scale = 0.015

DRAWING NUMBER: V170-000139

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo) Ft^2	425.92	0.09583
Planform		
Span (Theo) In	315.72	4.7358
Aspect Ratio	1.675	1.675
Rate of Taper	0.507	0.507
Taper Ratio	0.404	0.404
Sweep Back Angles, degrees		
Leading Edge	45.000	45.000
Trailing Edge	26.249	26.249
0.25 Element Line	41.130	41.130
Chords:		
Root (Theo) WP	268.50	4.02750
Tip (Theo) WP	108.47	1.62705
MAC	199.81	2.99715
Fus. Sta. of .25 MAC	1463.50	21.95250
W. P. of .25 MAC	635.522	9.53283
B. L. of .25 MAC	0.00	0.00
Airfoil Section		
Leading Wedge Angle Deg	10.000	10.000
Trailing Wedge Angle Deg	14.930	14.930
Leading Edge Radius	2.0	0.030
Void Area - Ft^2	13.17	0.00296
Blanketed Area	0.00	0.00

TABLE III. MODEL DIMENSIONAL DATA (Concluded)

MODEL COMPONENT: WING-W 107

GENERAL DESCRIPTION: Configuration 3 per Rockwell Lines V170-000139

NOTE: Same as W103, except cuff, airfoil and incidence angle.

Model Scale = 0.015

TEST NO. DWG. NO. V170-000139

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo.) Ft^2		
Planform	2690.00	0.60525
Span (Theo In.	936.68	14.05020
Aspect Ratio	2.265	2.265
Rate of Taper	1.177	1.177
Taper Ratio	0.200	0.200
Dihedral Angle, degrees (@ TE of Elevon)	3.500	3.500
Incidence Angle, degrees	0.500	0.500
Aerodynamic Twist, degrees	-3.000	-3.000
Sweep Back Angles, degrees		
Leading Edge	45.000	45.000
Trailing Edge	-10.24	-10.24
0.25 Element Line	35.209	35.209
Chords:		
Root (Theo) B.P.0.0.	689.24	10.33860
Tip, (Theo) B.P.	137.85	2.06775
MAC	474.81	7.12215
Fus. Sta. of .25 MAC	1136.89	17.05335
W.P. of .25 MAC	299.20	4.48800
B.L. of .25 MAC	182.13	2.73195
EXPOSED DATA		
Area (Theo) Ft^2	1752.29	0.39426
Span, (Theo) In. BP108	720.68	10.81020
Aspect Ratio	2.058	2.058
Taper Ratio	0.2451	0.2451
Chords		
Root BP108	562.40	8.43600
Tip 1.00 $\frac{b}{2}$	137.85	2.06775
MAC	393.03	5.89545
Fus. Sta. of .25 MAC	1185.31	17.77965
W.P. of .25 MAC	300.20	4.50300
B.L. of .25 MAC	251.76	3.77640
Airfoil Section (Rockwell Mod NASA) XXXX-64		
Root $\frac{b}{2}$ =	0.10	0.10
Tip $\frac{b}{2}$ =	0.12	0.12
Data for (1) of (2) Sides		
Leading Edge Cuff Planform Area Ft^2	118.333	0.02662
Leading Edge Intersects Fus M. L. @ Sta	500	7.5000
Leading Edge Intersects Wing @ Sta	1083.4	16.2510

Table IV RCS Direct Impingement Force Data

RUN NO.	P_t (PSIA)	ΔNF (LB)	ΔAF (IN-LB)	ΔPM (IN-LB)	ΔRM (IN-LB)	ΔYM (IN-LB)	ΔSF (IN-LB)	P_{STATIC} (PSFA)
1								
	224.3	0.0	0.0	0.0	0.0	0.0	- 0.20	233.3
	65.0	0.0	0.0	0.0	0.0	0.0	0.0	234.5
	166.8	0.0	0.0	0.0	0.0	0.0	0.0	235.4
	71.7	0.0	0.0	0.0	0.0	0.0	0.0	235.8
21								
	64.5	0.37	0.0	0.0	0.0	0.0	0.0	371.9
	70.1	0.37	0.0	0.0	0.0	0.0	0.0	364.8
	164.8	0.37	0.0	0.0	0.0	0.43	0.0	357.5
	227.5	0.37	0.0	0.0	0.0	0.43	0.0	355.6
	402.1	0.37	0.0	0.0	0.0	0.43	0.0	353.0
43								
	62.5	0.0	- 0.04	0.91	0.0	0.0	0.0	245.3
	73.7	0.0	- 0.04	0.0	0.0	0.43	0.0	241.1
	164.3	0.0	- 0.04	0.0	0.0	0.43	0.0	240.5
	225.6	0.0	- 0.04	0.0	0.0	0.43	0.0	240.5
62								
	63.8	0.0	0.0	0.0	0.0	0.0	0.0	229.2
	70.1	0.0	0.0	0.0	0.0	0.0	0.0	230.0
	164.8	0.0	0.0	0.0	0.0	0.0	0.0	231.5
	226.3	0.0	0.0	0.0	0.0	0.0	0.0	232.5

NOTE: INCREMENTAL BALANCE QUANTITIES (ΔNA, ΔAF, ETC.) ARE EQUAL TO (VALUE, AIR ON) - (VALUE, AIR OFF). THE MOMENTS ARE REFERRED TO THE BALANCE MOMENT CENTER.

MODEL FIGURES

Notes:

1. Positive directions of force cofficients, moment coefficients, and angles are indicated by arrow
2. For clarity, origins of wind and stability axes have been displaced from the center of gravity

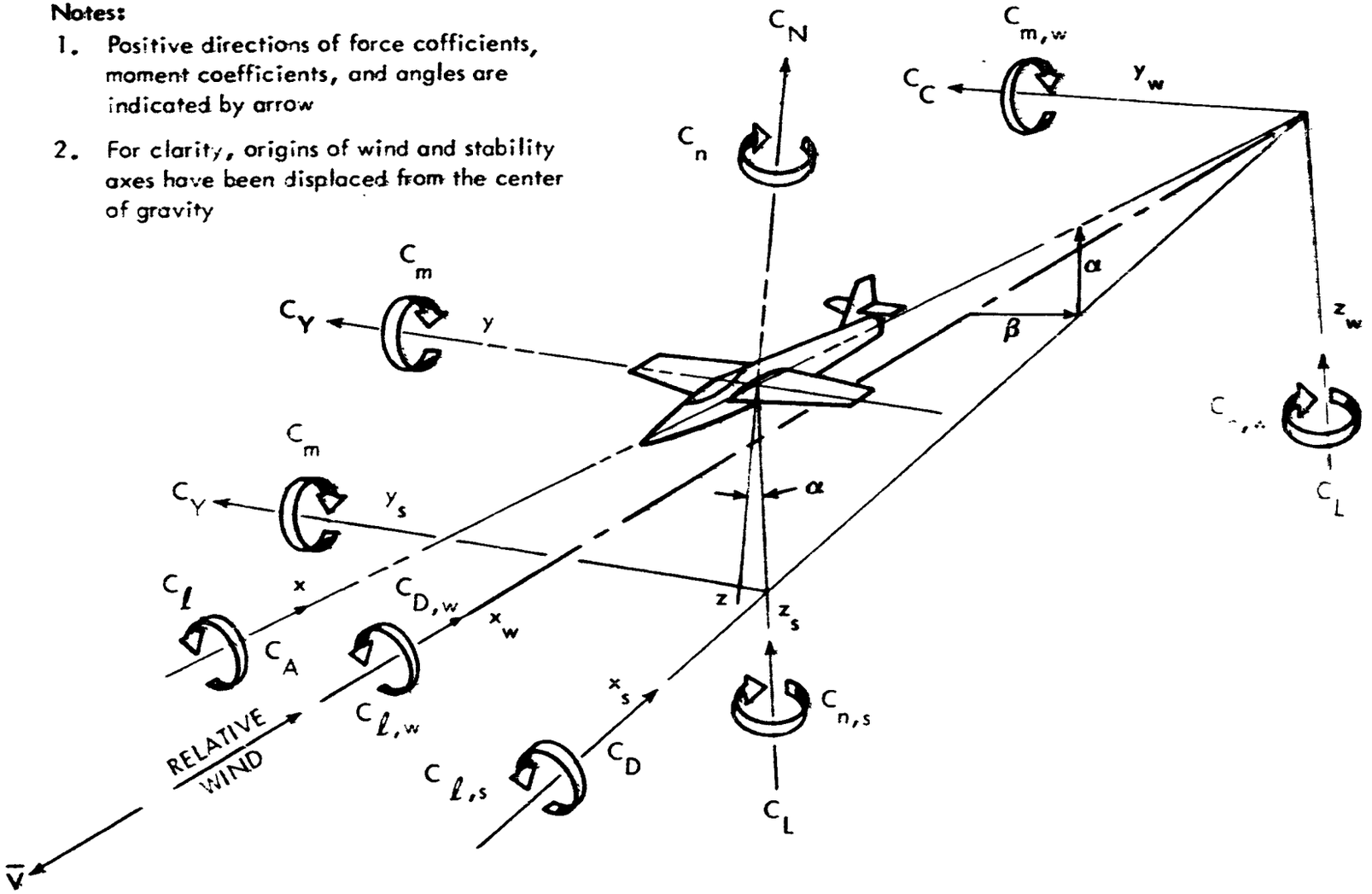
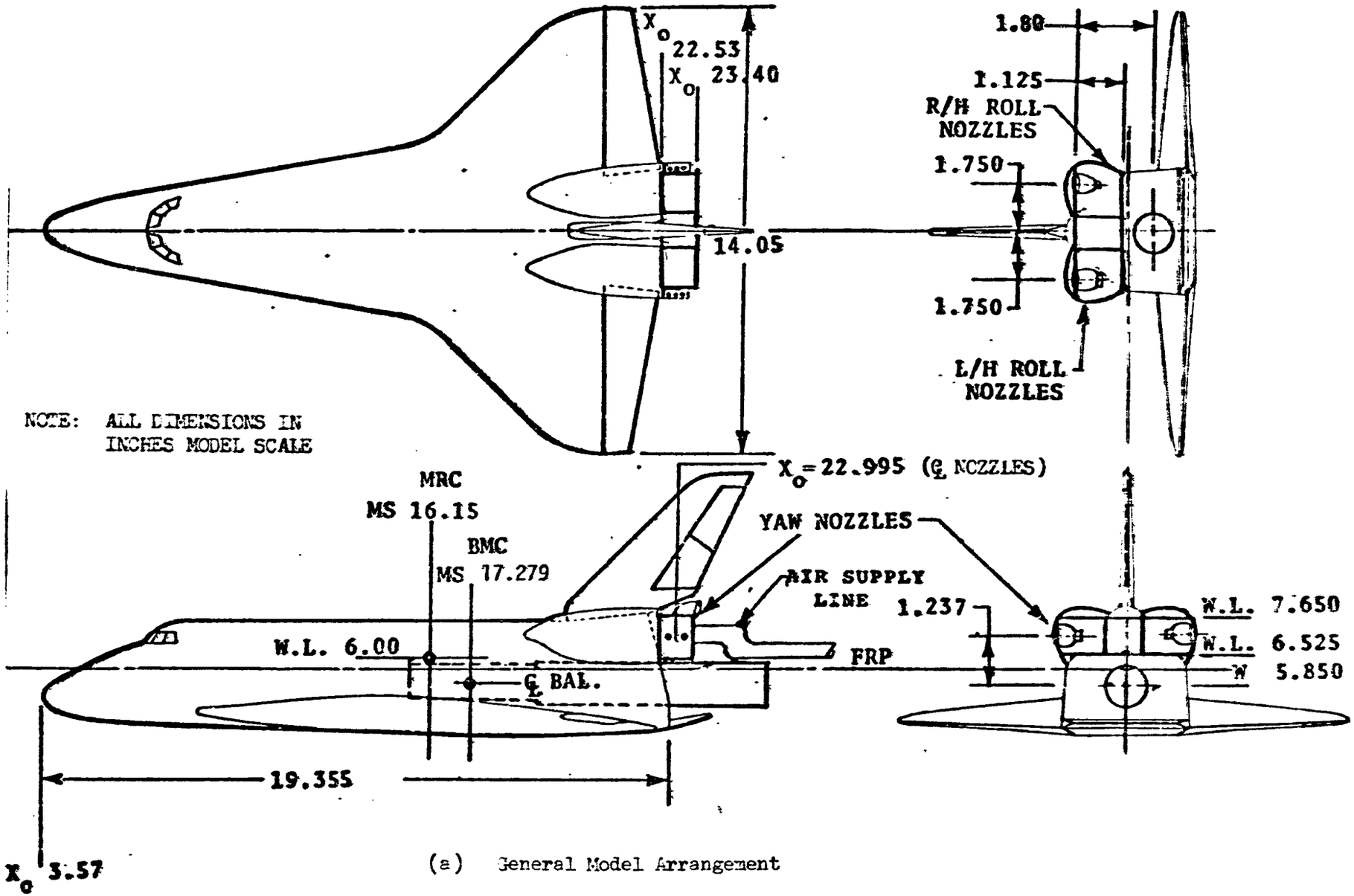
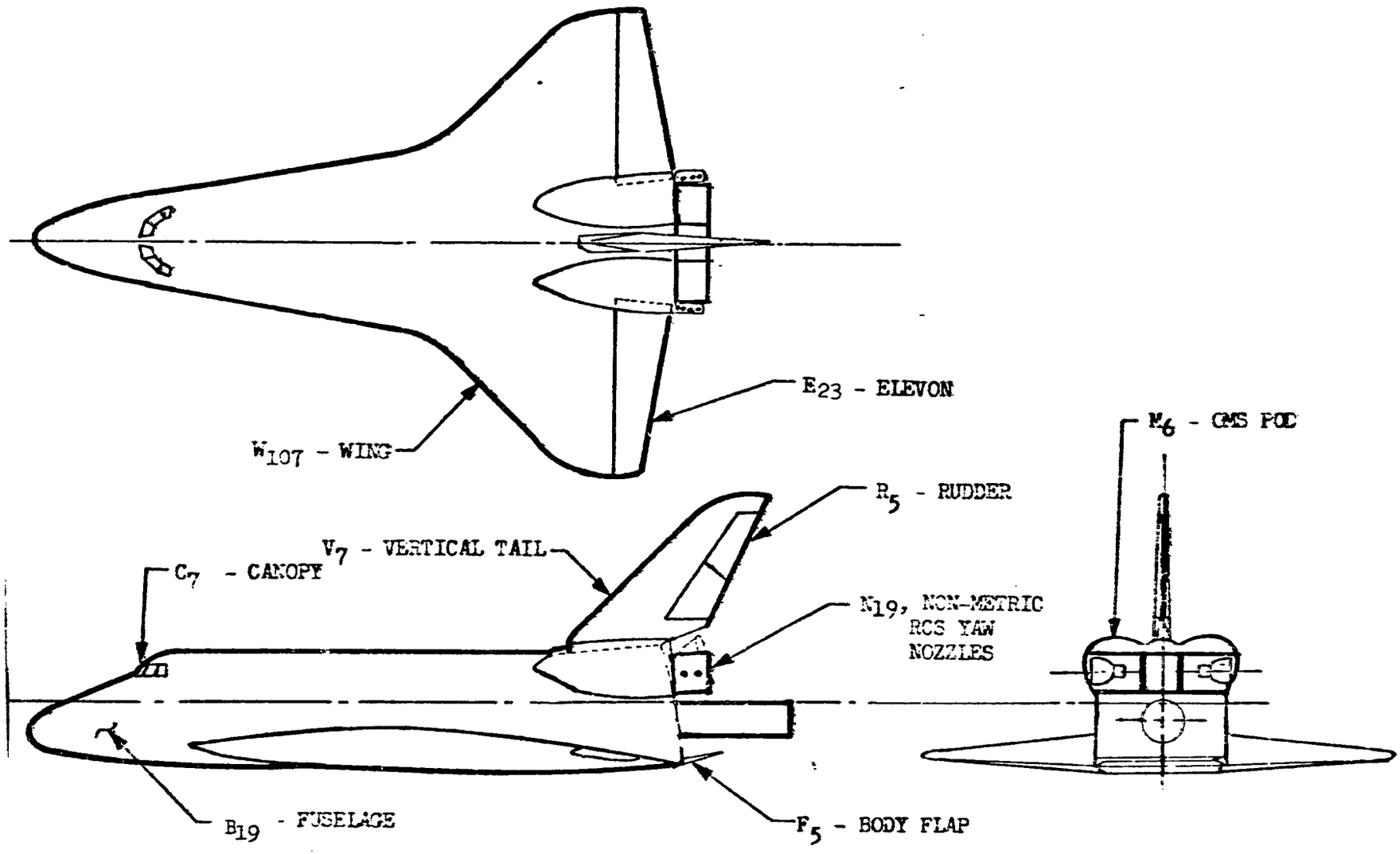


Figure 1. - Axis Systems.



(a) General Model Arrangement

Figure 2. - Model Information.



(b) SSV Orbiter VL70000139 Model Nomenclature

Figure 2. - Continued.

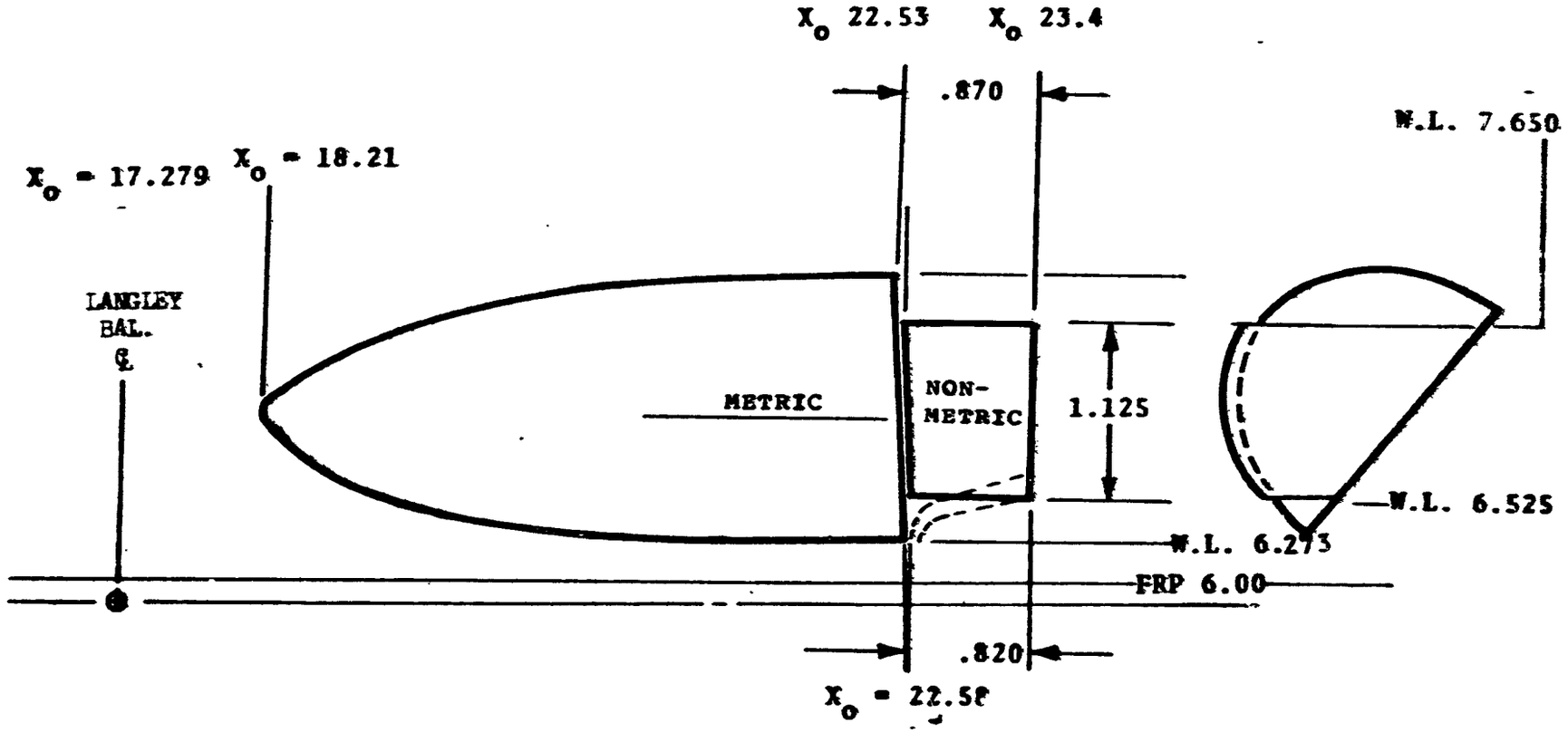
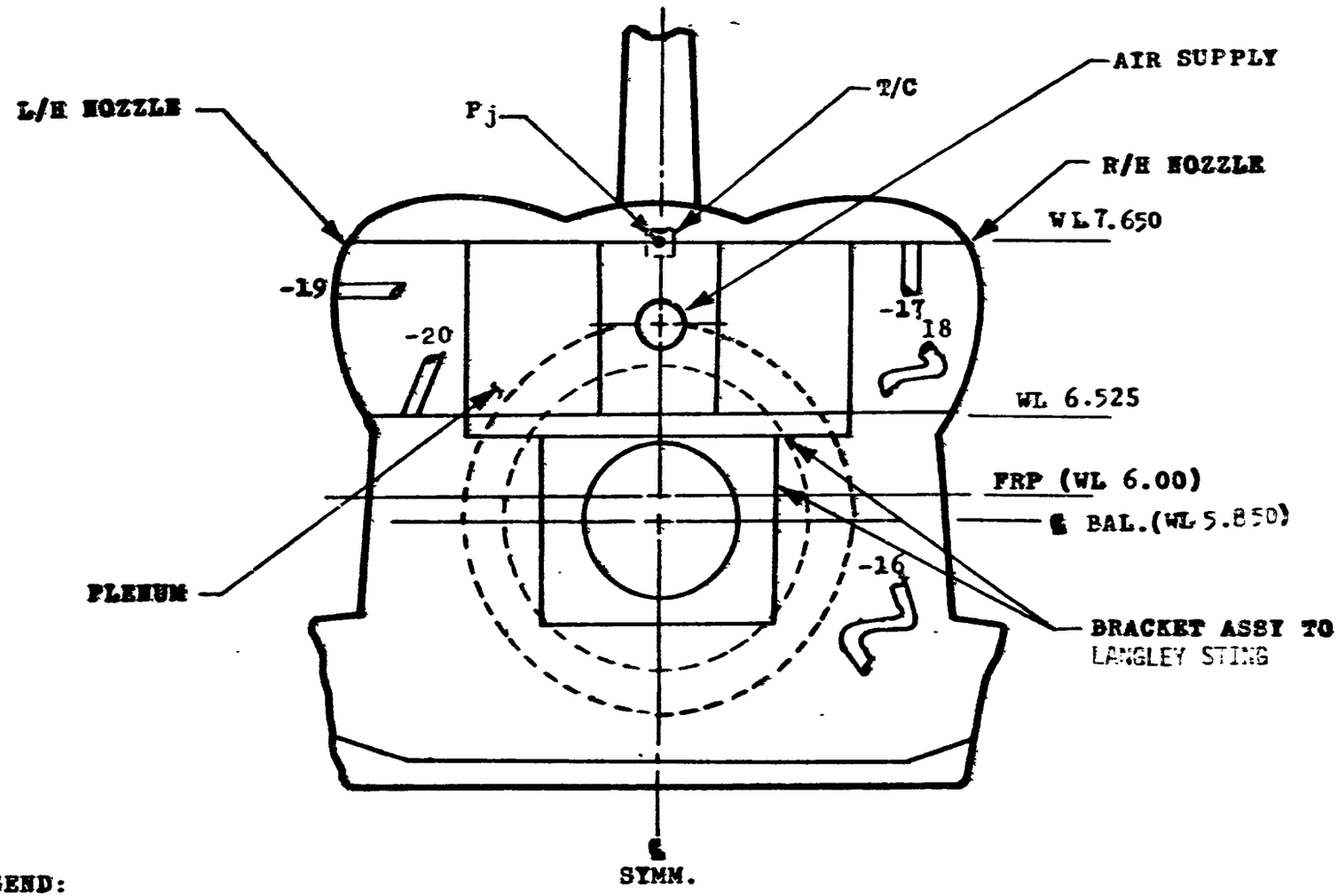


FIGURE 2. (Cont'd)

c) M_6 OMS POD



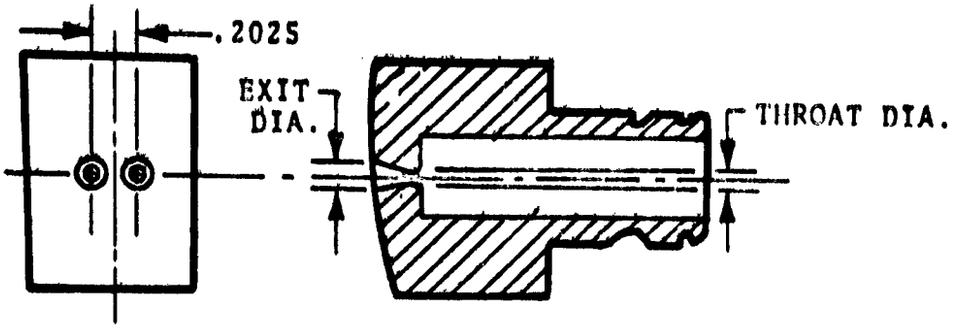
LEGEND:

- **-16 MODEL BASE PRESSURE**
- **-17 R/H NOZZLE SURFACE PRESSURE**
- **-18 R/H NOZZLE BASE PRESSURE**
- **-19 L/H NOZZLE HORIZONTAL SURFACE PRESSURE**
- **-20 L/H NOZZLE LOWER SURFACE PRESSURE**

P_j RCS PLENUM PRESSURE

(d) Arrangement of Fuselage and RCS Plenum Base Pressures

Figure 2. - Continued.

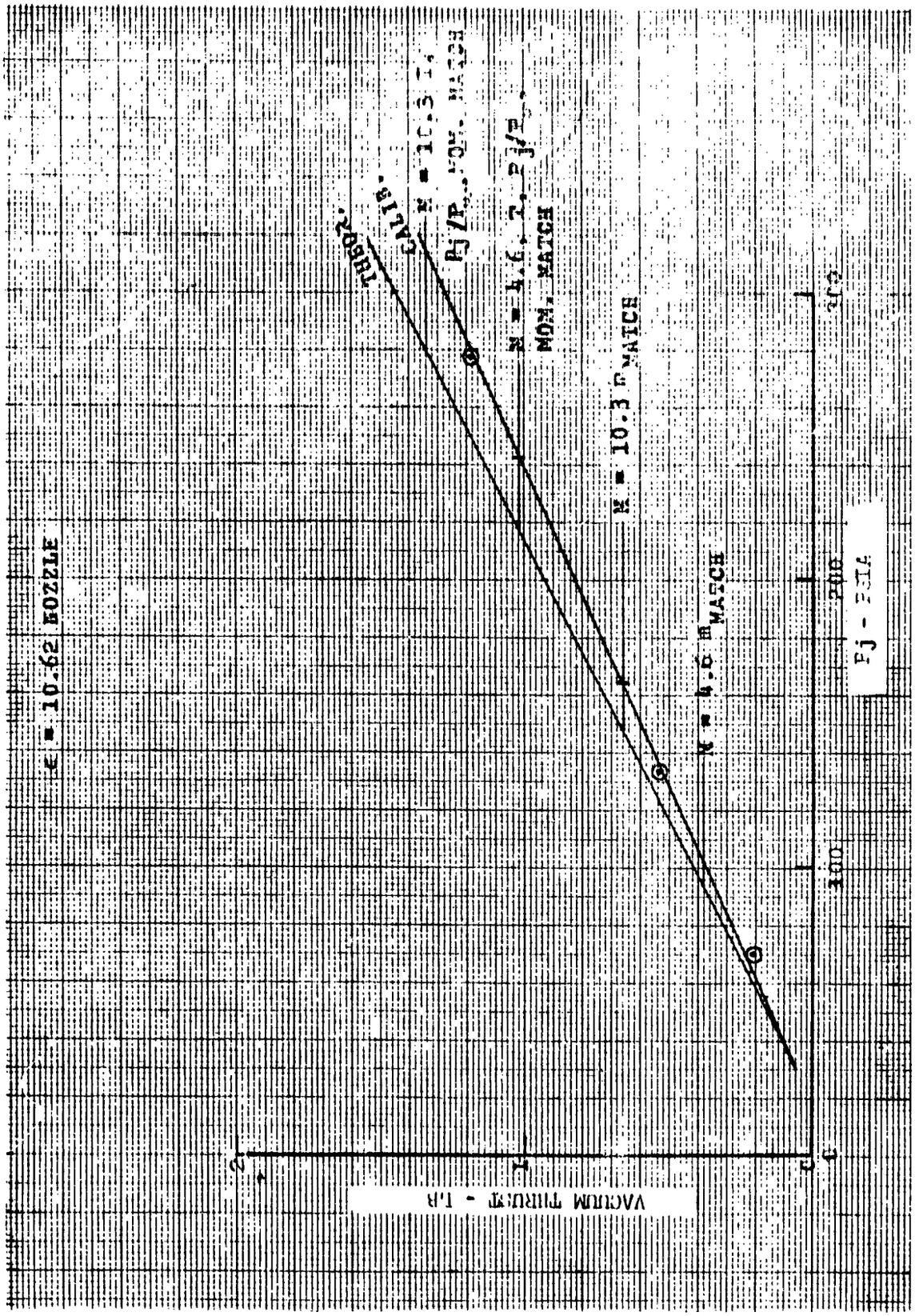


NOTES:
- ALL DIMENSIONS IN INCHES MODEL SCALE
- TWIN NOZZLE CONFIGURATION
- LEFT-HAND NOZZLE FIRING ONLY (FOR YAW CONTROL SIMULATION)
- THROAT DIA. = 0.0437 IN.

  THROAT AREA = 0.00151 IN^2
  EXIT DIA. = 0.1440 IN.
  EXIT AREA = 0.01629 IN^2
  EXPANSION RATIO = 10.81
- PROVIDES SIMILITUDE WITH ORBITER YAW RCS PLUME GEOMETRY AT MACH 10.3 ENTRY CONDITION
- DESIGNATED AS N_{19}

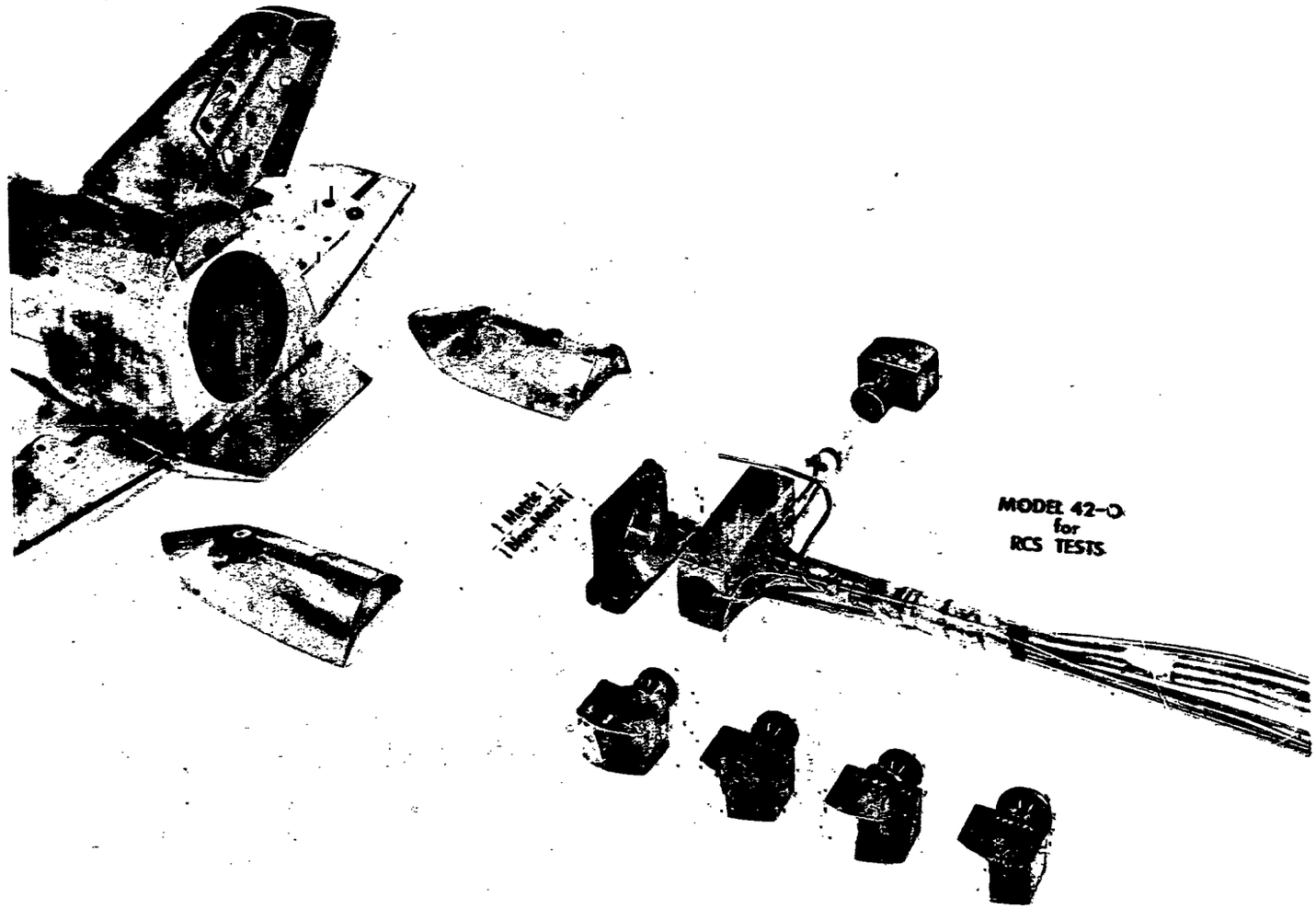
FIGURE 2. (Cont'd)

e) RCS Nozzle Details



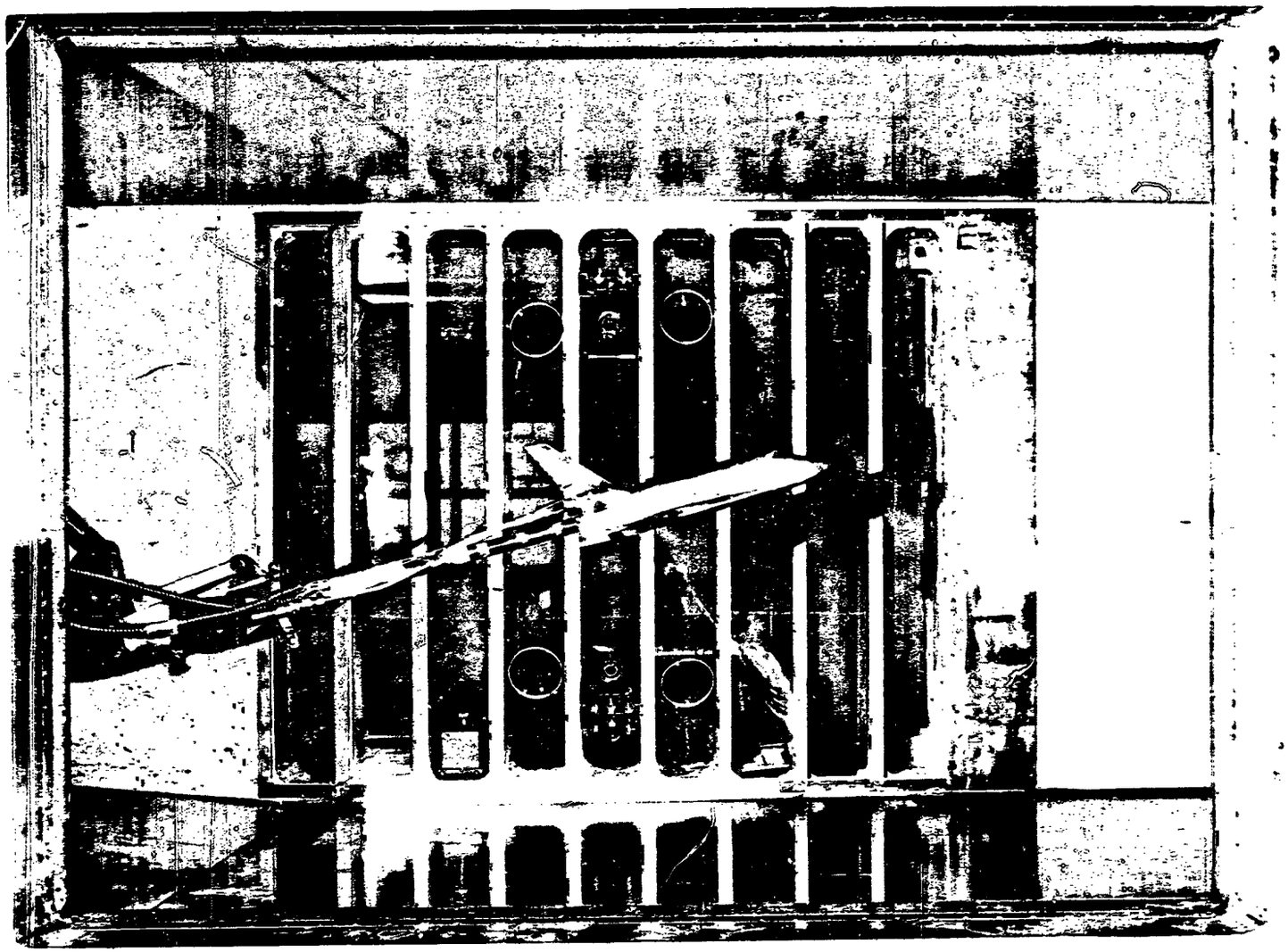
(f) M_9 Nozzle Calibration

Figure 2. - Concluded.



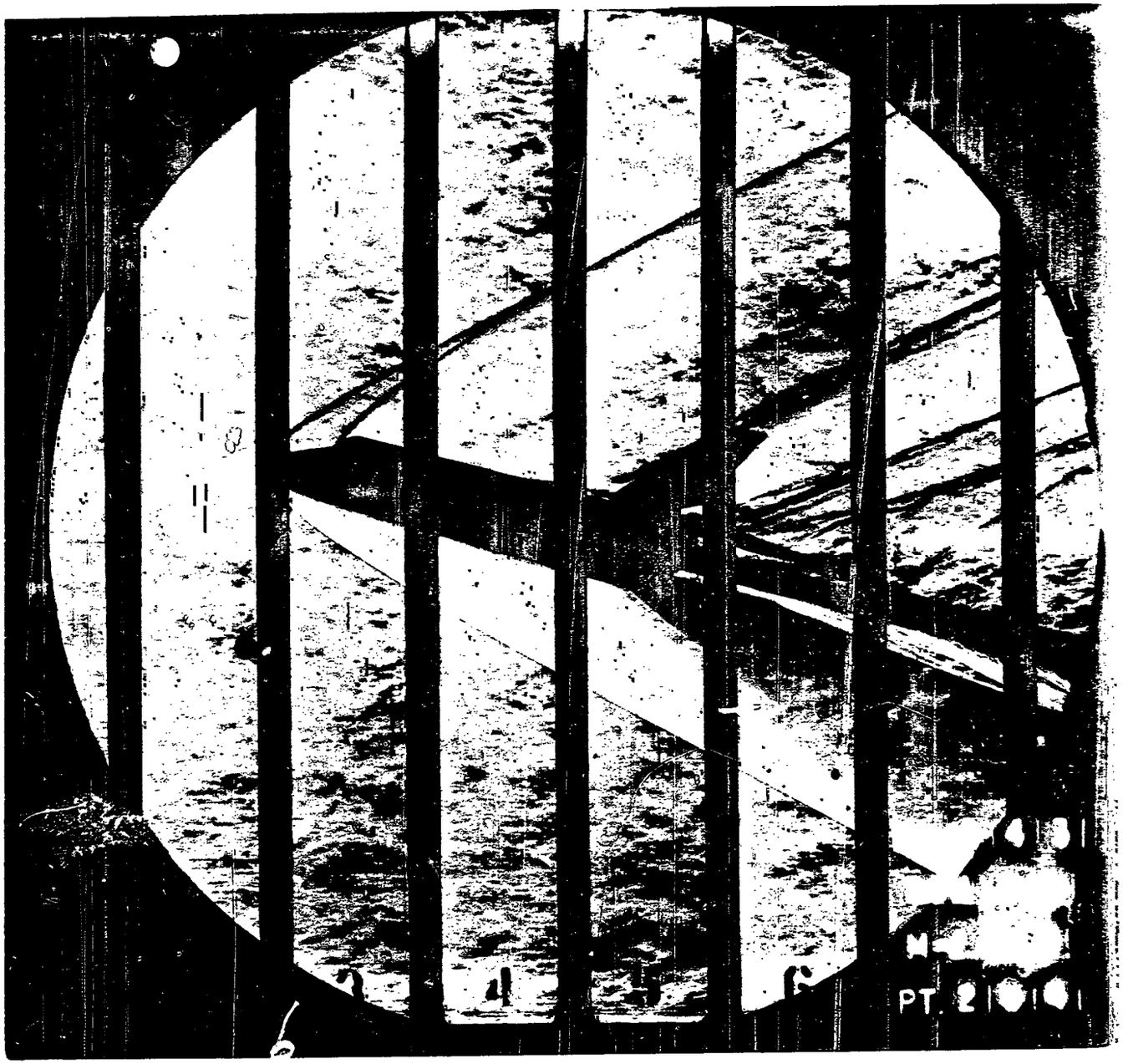
(a) Model RSC Nozzle Hardware

Figure 3. - Model Photographs.



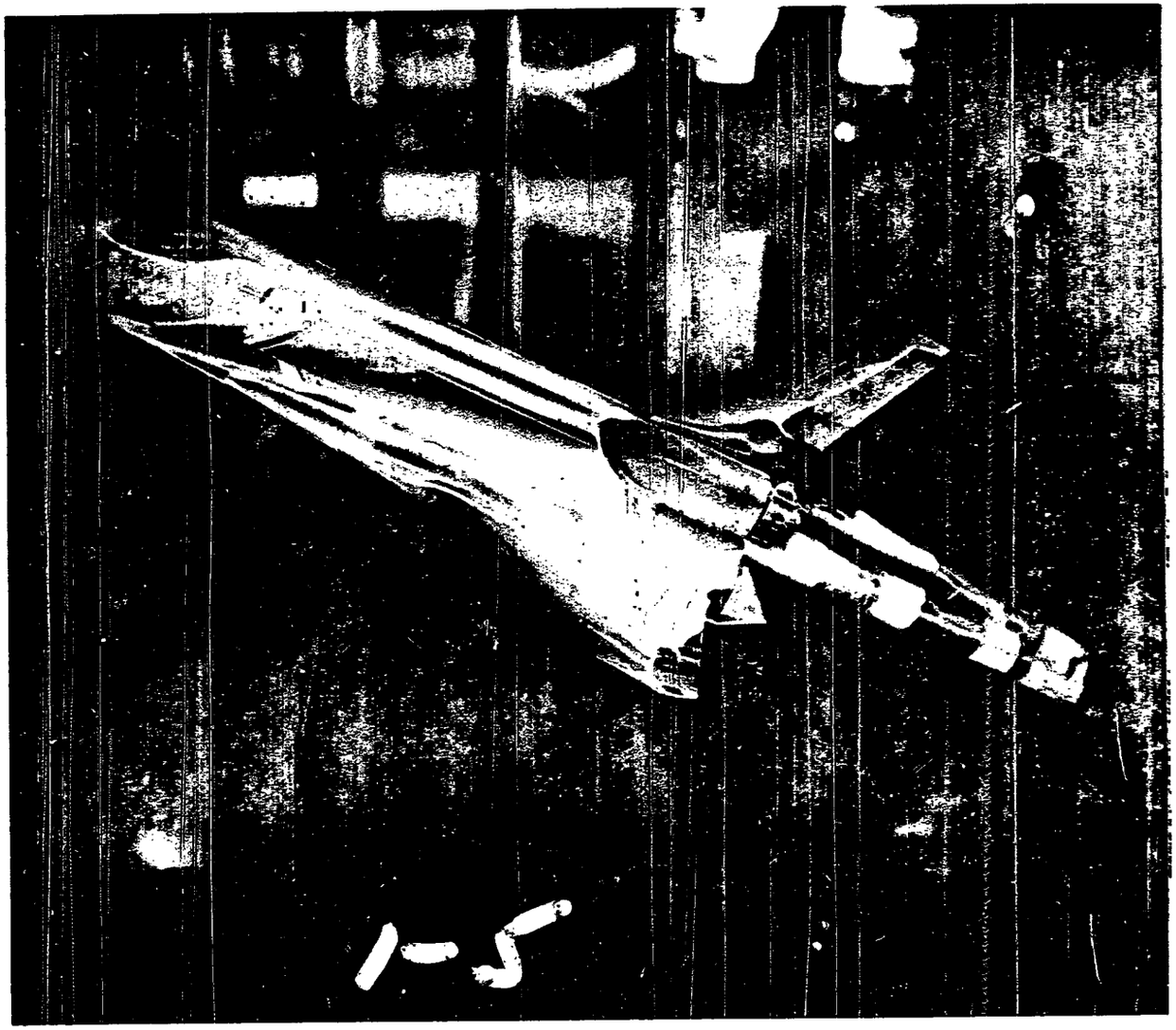
(b) General Installation Photograph

Figure 3. - Continued.



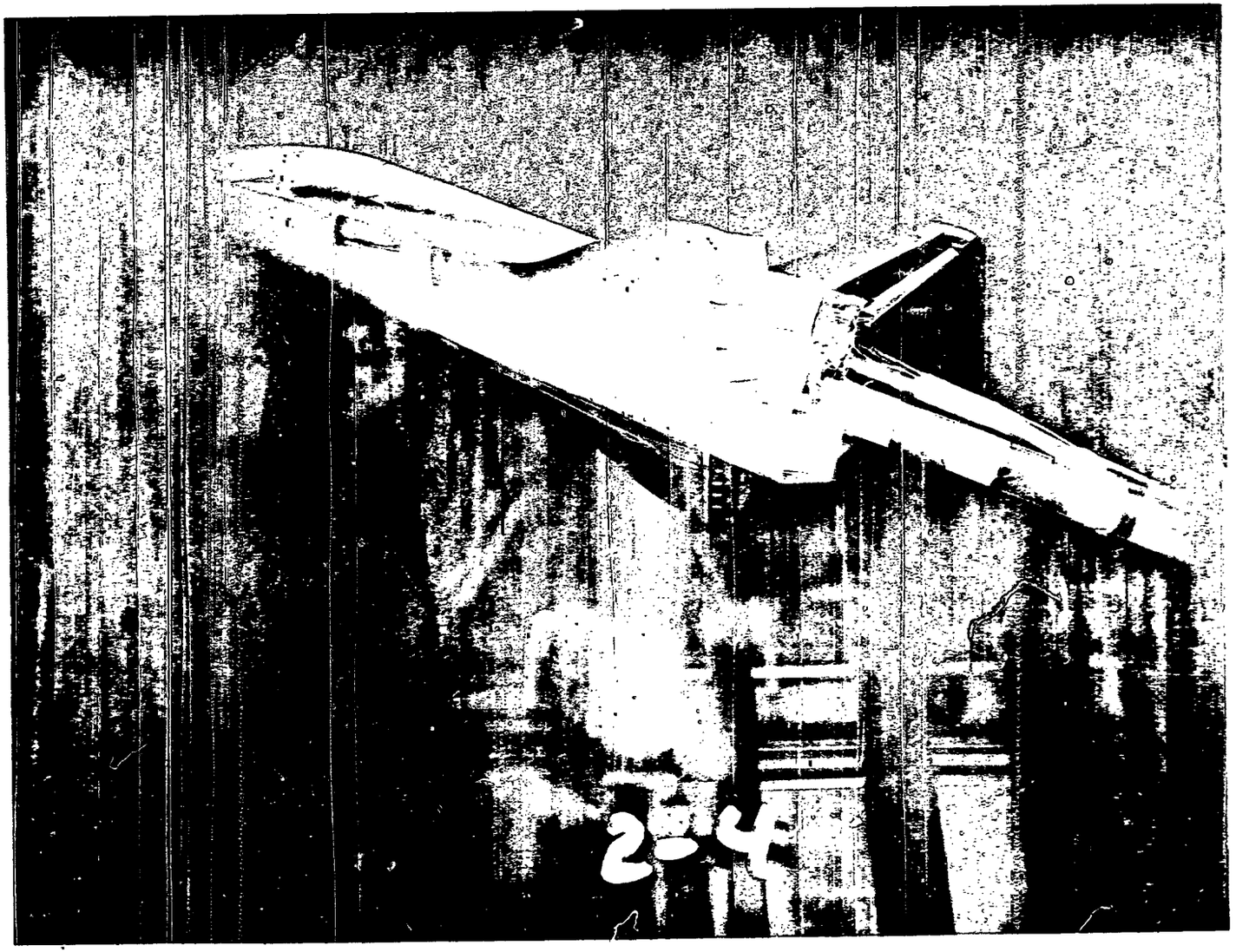
(c) Typical Schlieren Photograph

Figure 3. - Continued.



(d) Typical Oil-Flow Photograph (RCS Operating)

Figure 3. - Continued.



(e) Typical Oil-Flow Photograph (RCS Not Operating)

Figure 3. - Concluded.

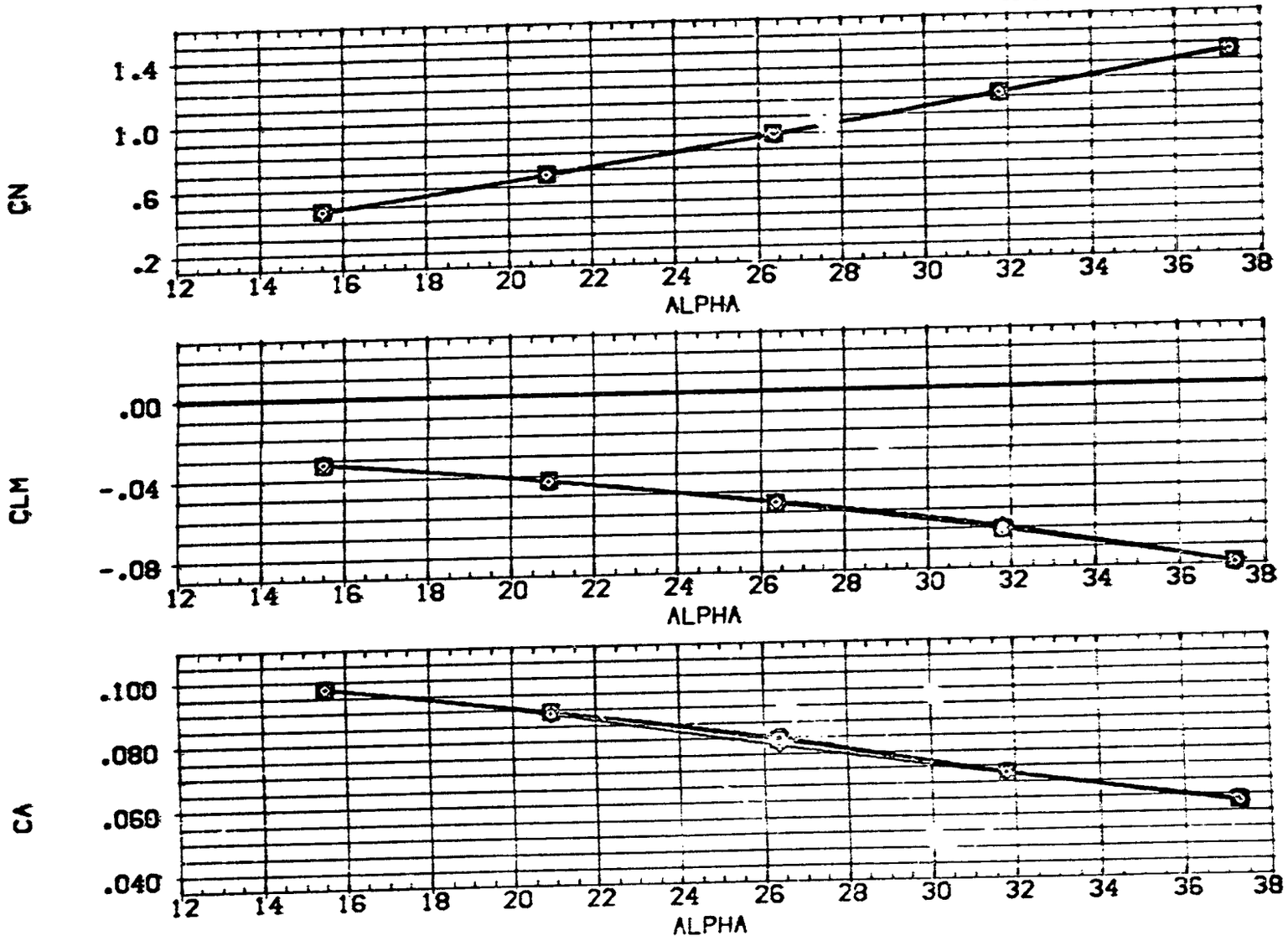
DATA FIGURES

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV0C2)

SYMBOL	PB-JET	PARAMETRIC VALUES			
○	.092	BETA	.000	MACH	2.500
□	69.464	RVL	1.720	ELEVTR	.000
◇	223.200	AILRON	.000	BDFLAP	.000
		PODFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



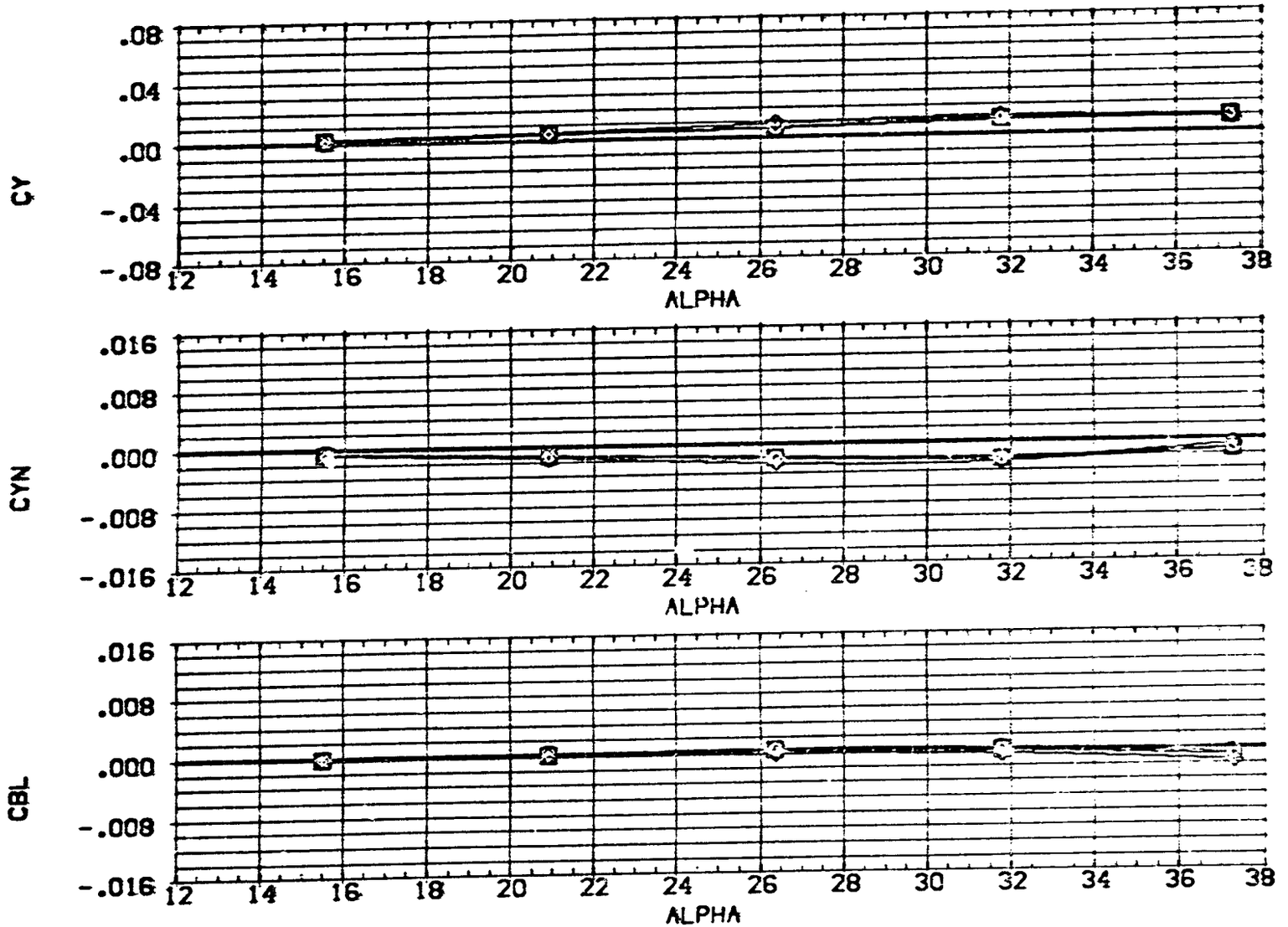
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=0, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV002)

SYMBOL	PC-JET	PARAMETRIC VALUES			
○	.092	BETA	.000	MACH	2.500
□	69.464	RN/L	1.720	ELEVTR	.000
◇	223.200	AILRON	.000	BDFLAP	.000
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.2000	INCHES
SCALE	.0150	



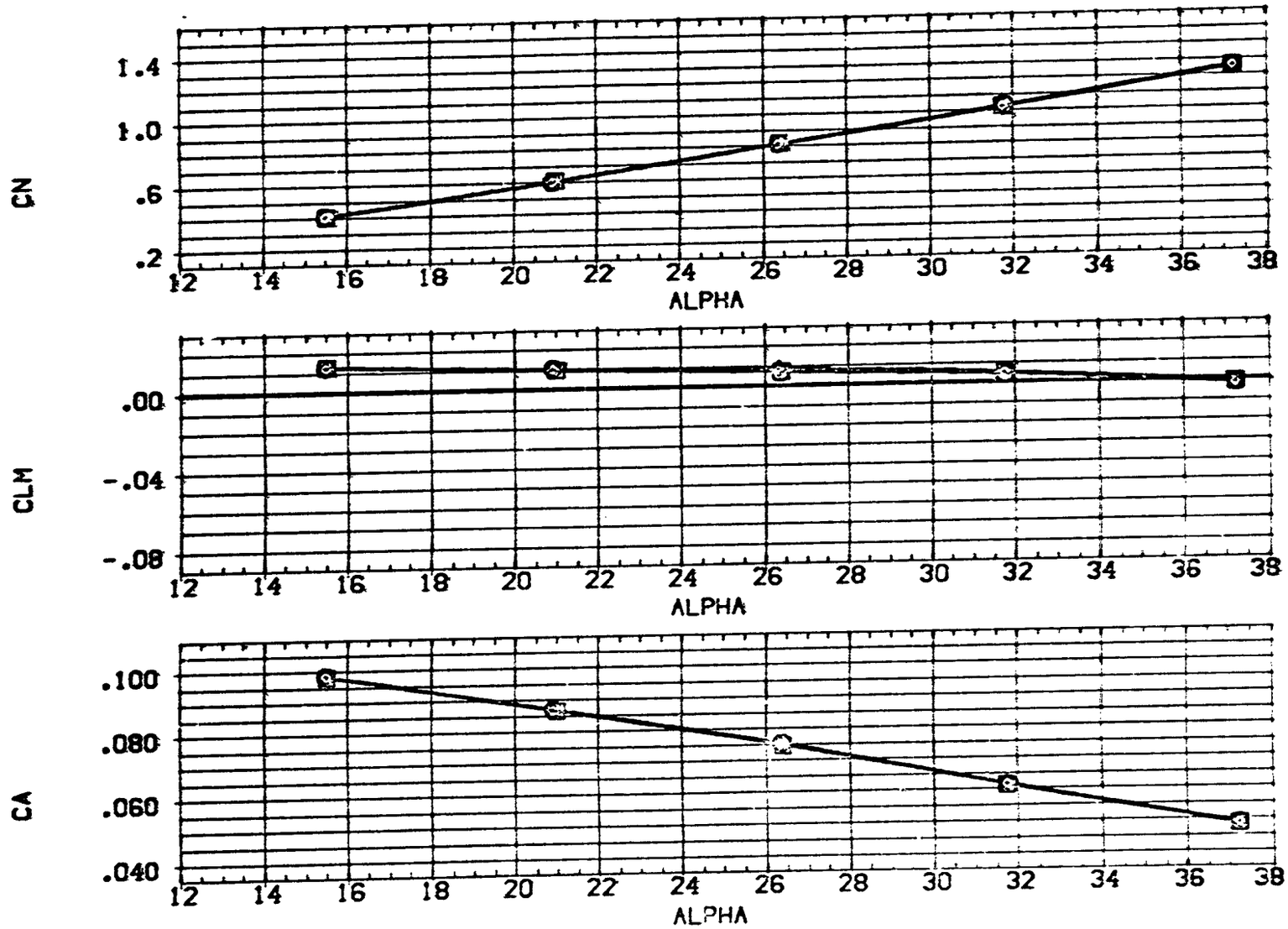
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=0, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV005)

SYMBOL	PB-JET		PARAMETRIC VALUES		
○	.277	BETA	.000	MACH	2.500
□	62.711	RVL	1.720	ELEVTR	-20.000
◇	226.743	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.2270	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



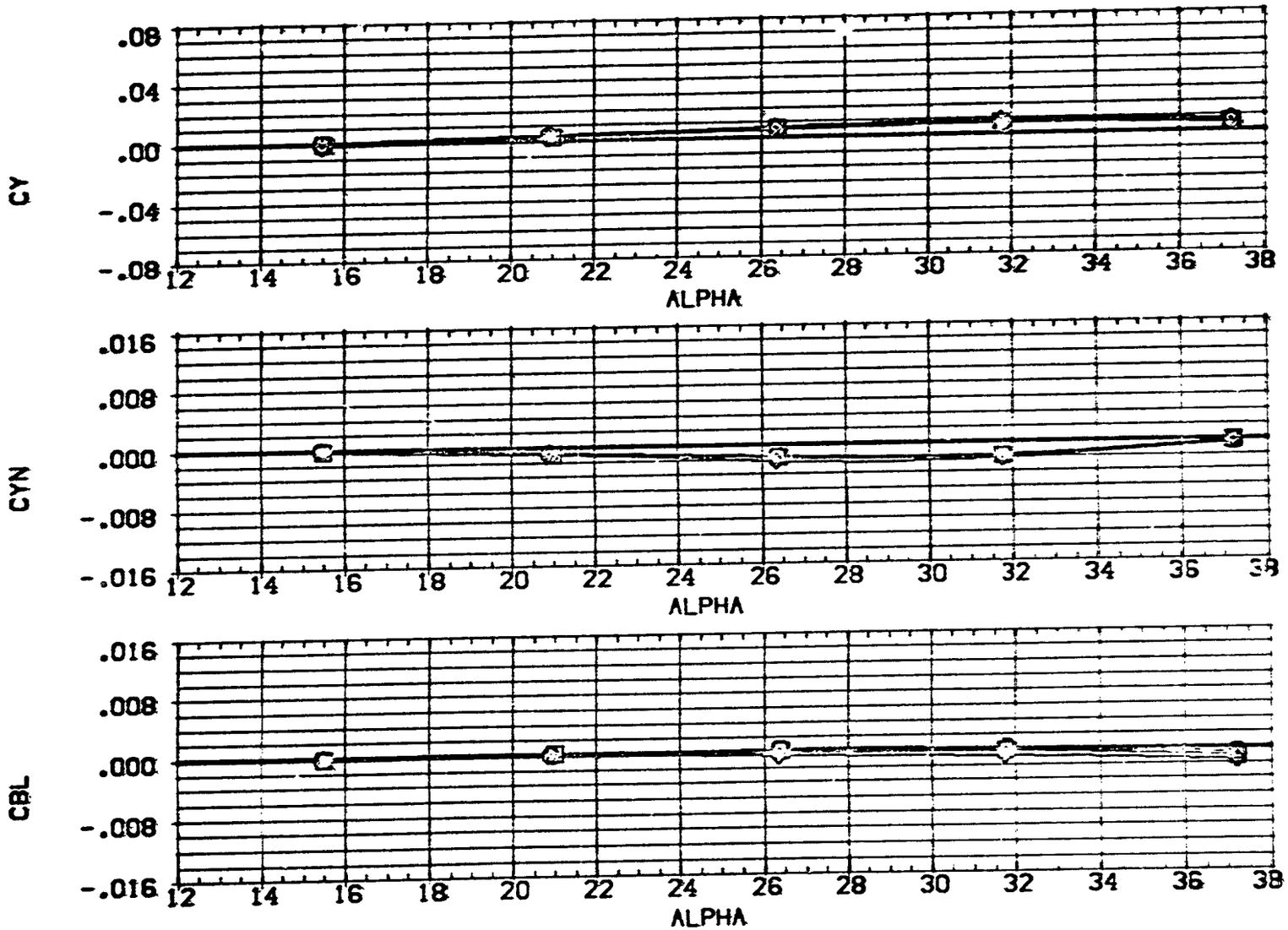
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=0, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV005)

SYMBOL	PB-JET		PARAMETRIC VALUES		
○	.277	BETA	.000	MACH	2.500
□	62.711	RVL	1.720	ELEVTR	-20.000
◇	226.743	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.5000	INCHES
SCALE	.0150	



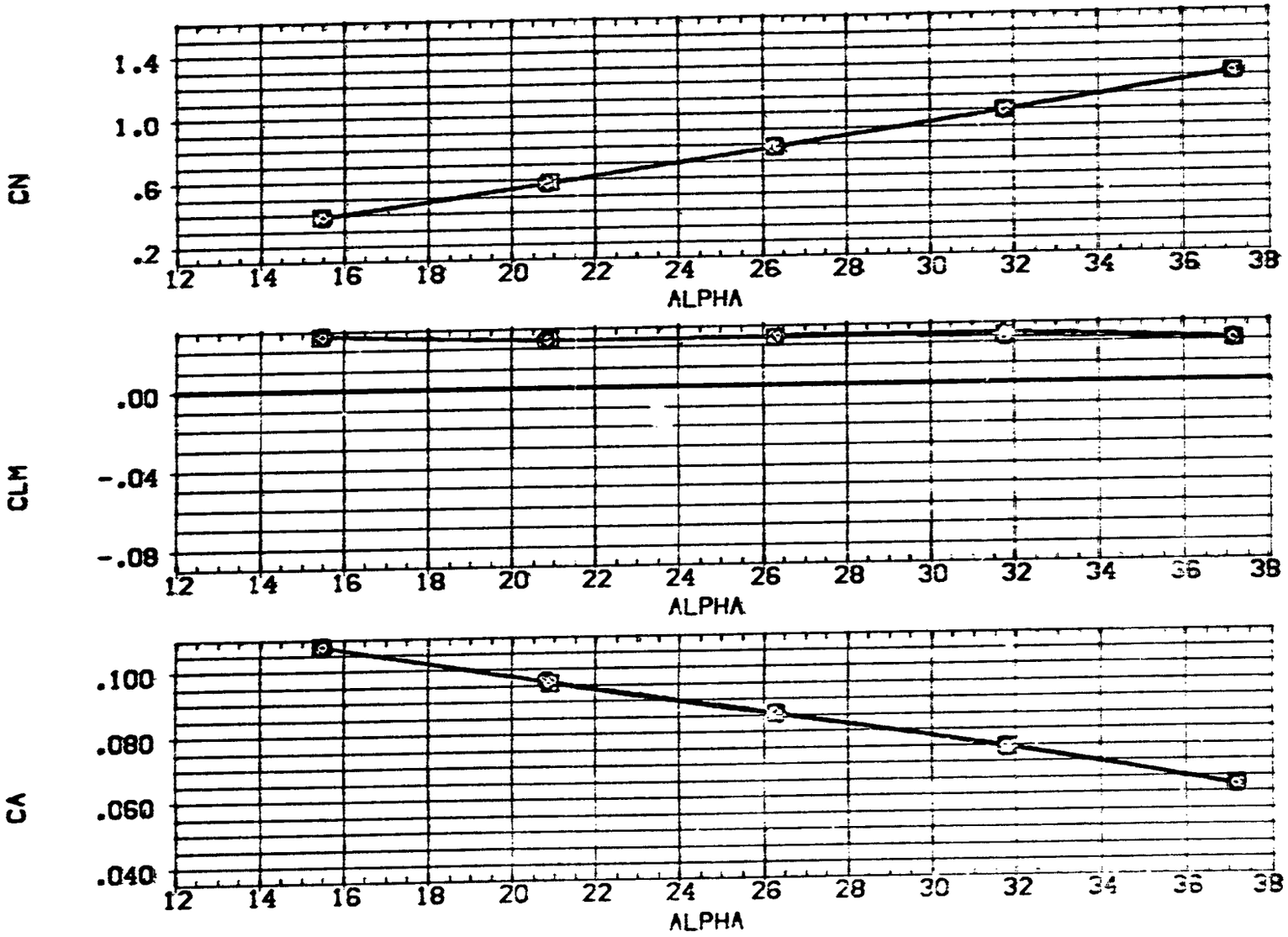
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=0, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV008)

SYMBOL	PB-JET		PARAMETRIC VALUES		
○	.337	BETA	.000	MACH	2.500
□	64.337	RVAL	1.720	ELEVTR	-40.000
◇	228.593	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.6500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=0, MACH=2.5)

CA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPVC08)

SYMBOL	PB-JET	PARAMETRIC VALUES			
○	.397	BETA	.000	MACH	2.500
□	64.397	RWL	1.720	ELEVTR	-40.000
◇	228.593	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	4.9500	INCHES
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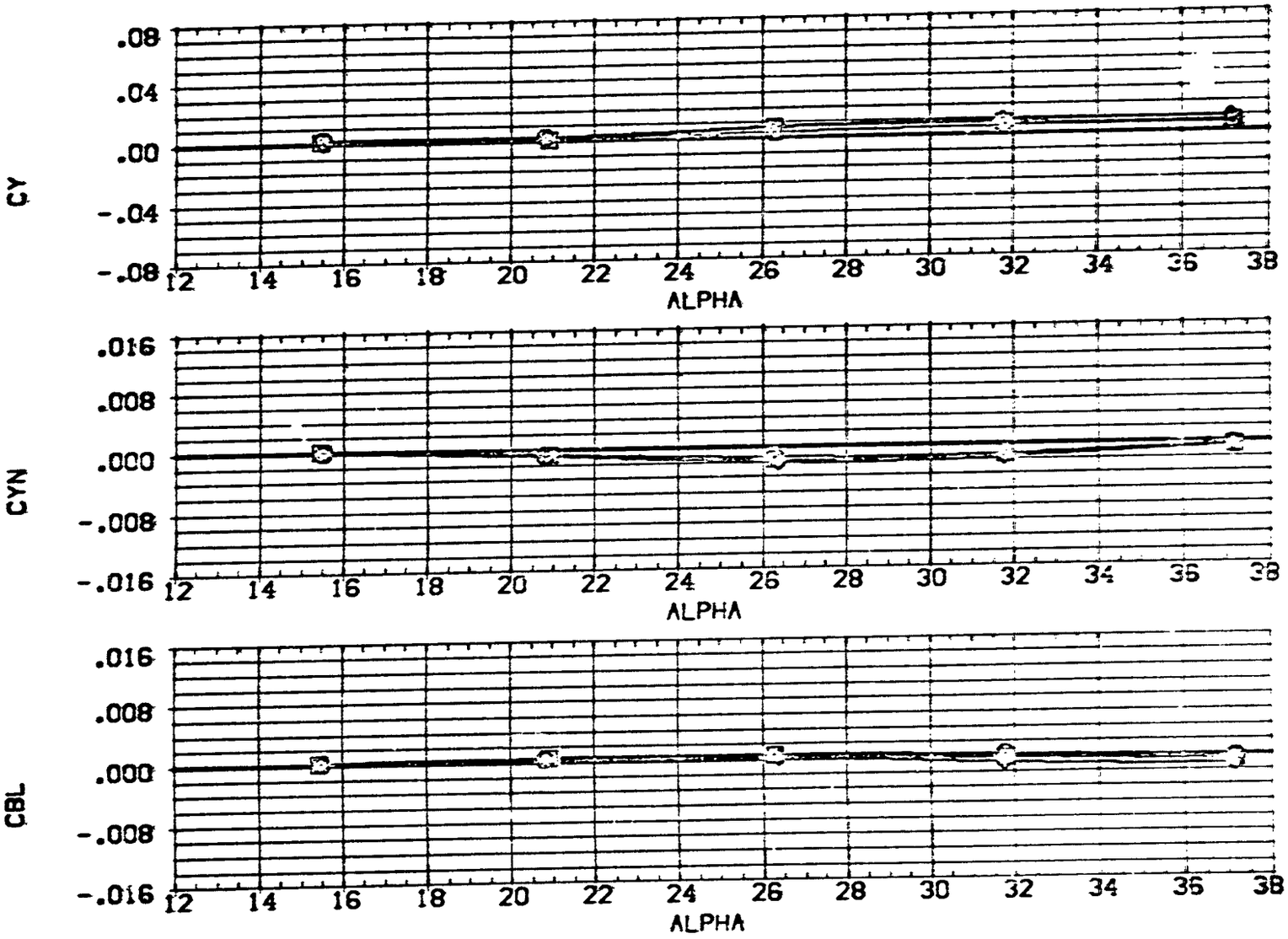
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=0, MACH=2.5)

OA-70, UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV011)

SYMBOL	PO-JET		PARAMETRIC VALUES		
○	.317	BETA	.000	MACH	4.600
□	70.137	RVL	1.720	ELEVTR	.000
◇	161.887	AILRON	.000	BDFLAP	.000
△	397.752	RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0333	INCHES
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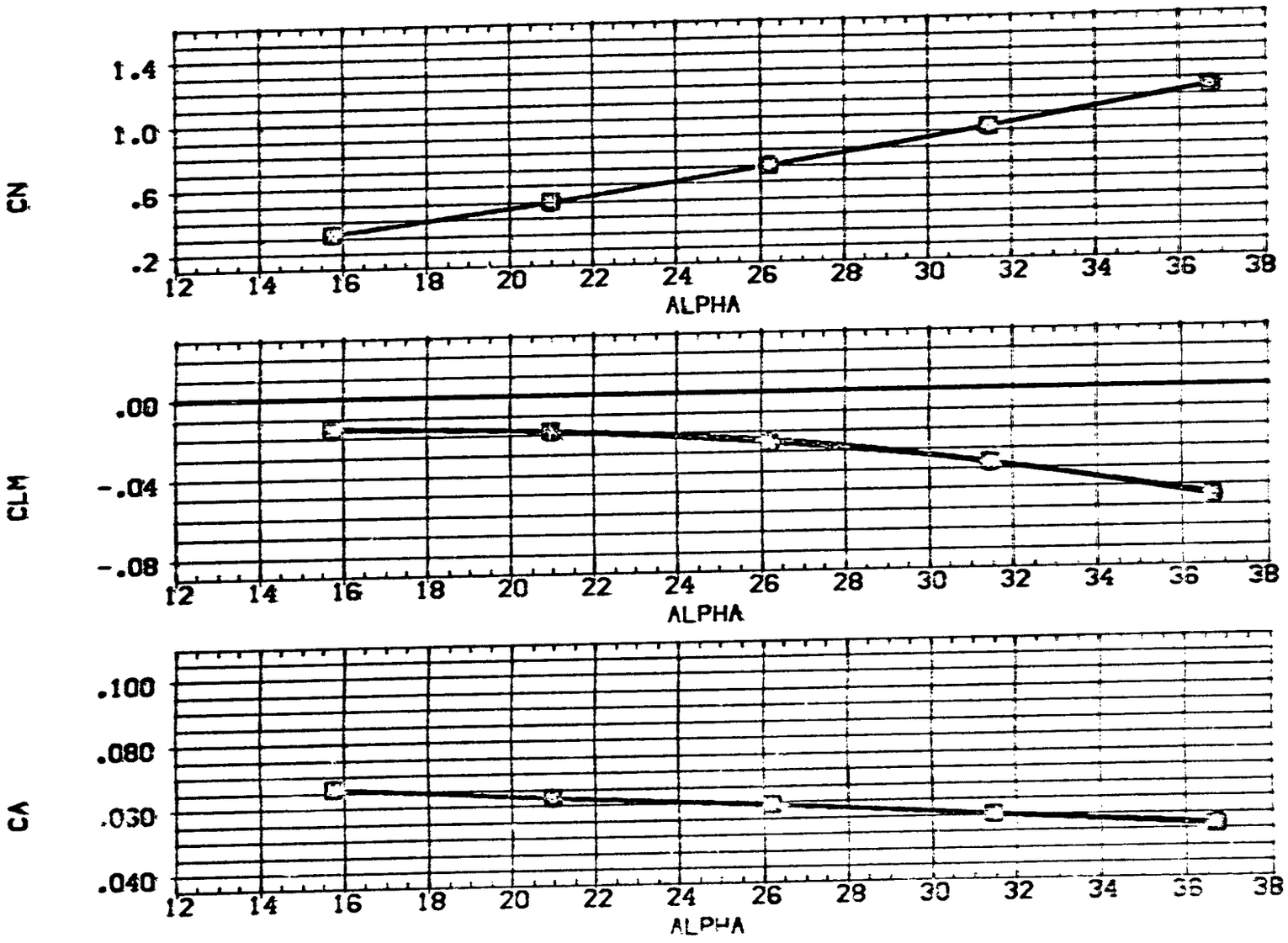
YMRP	.0000	INCHES
ZMRP	6.3000	INCHES
SCALE	.0150	



EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=0, MACH=4.6)

OA-70. UPWT1043.ORB(319C7F5M6N19)(W107E23)(V7R5)(RPV011)

SYMBOL	PB-JET		PARAMETRIC VALUES		
○	.317	BETA	.000	MACH	4.600
□	70.137	RNVL	1.720	ELEVTR	.000
◇	161.887	AILRON	.000	BOFLAP	.000
△	397.752	RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0333	INCHES
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YMRP	.0000	INCHES
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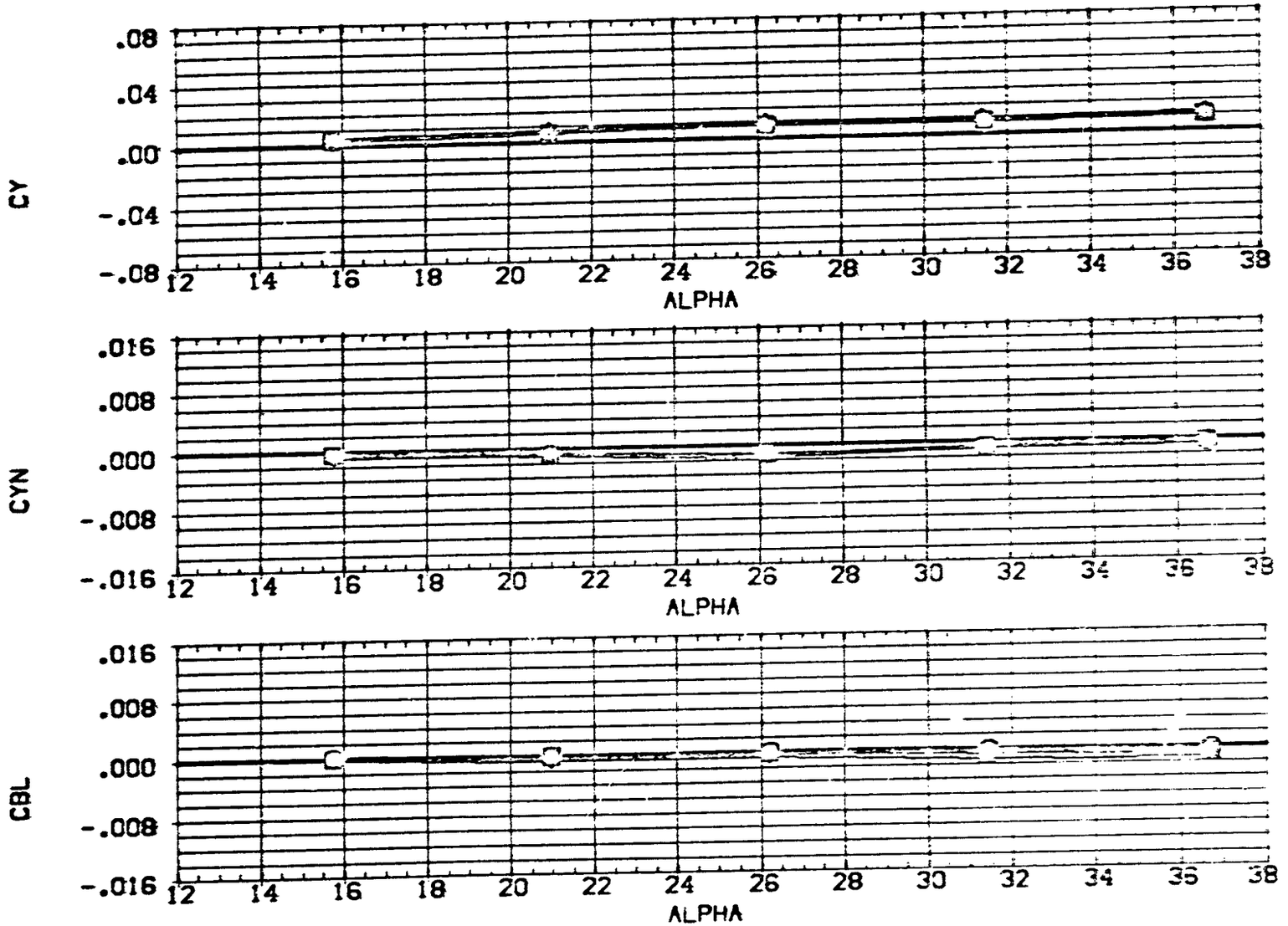
SCALE	.0150	



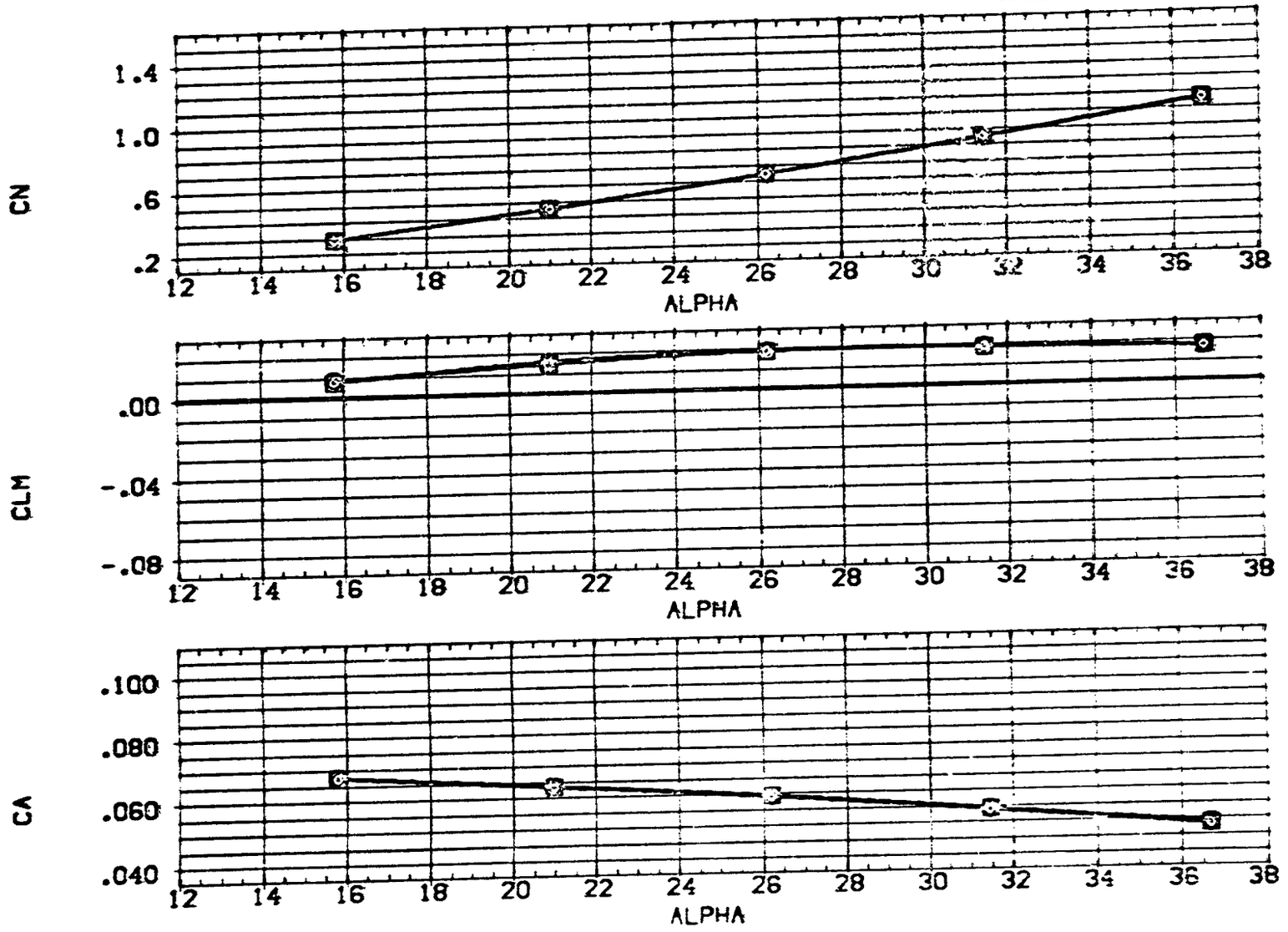
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=0, MACH=4.6)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV014)

SYMBOL	PB-JET	PARAMETRIC VALUES			
○	.042	BETA	.000	MACH	4.600
□	66.28:	RVL	1.720	ELEVTR	-20.000
◇	163.85:	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



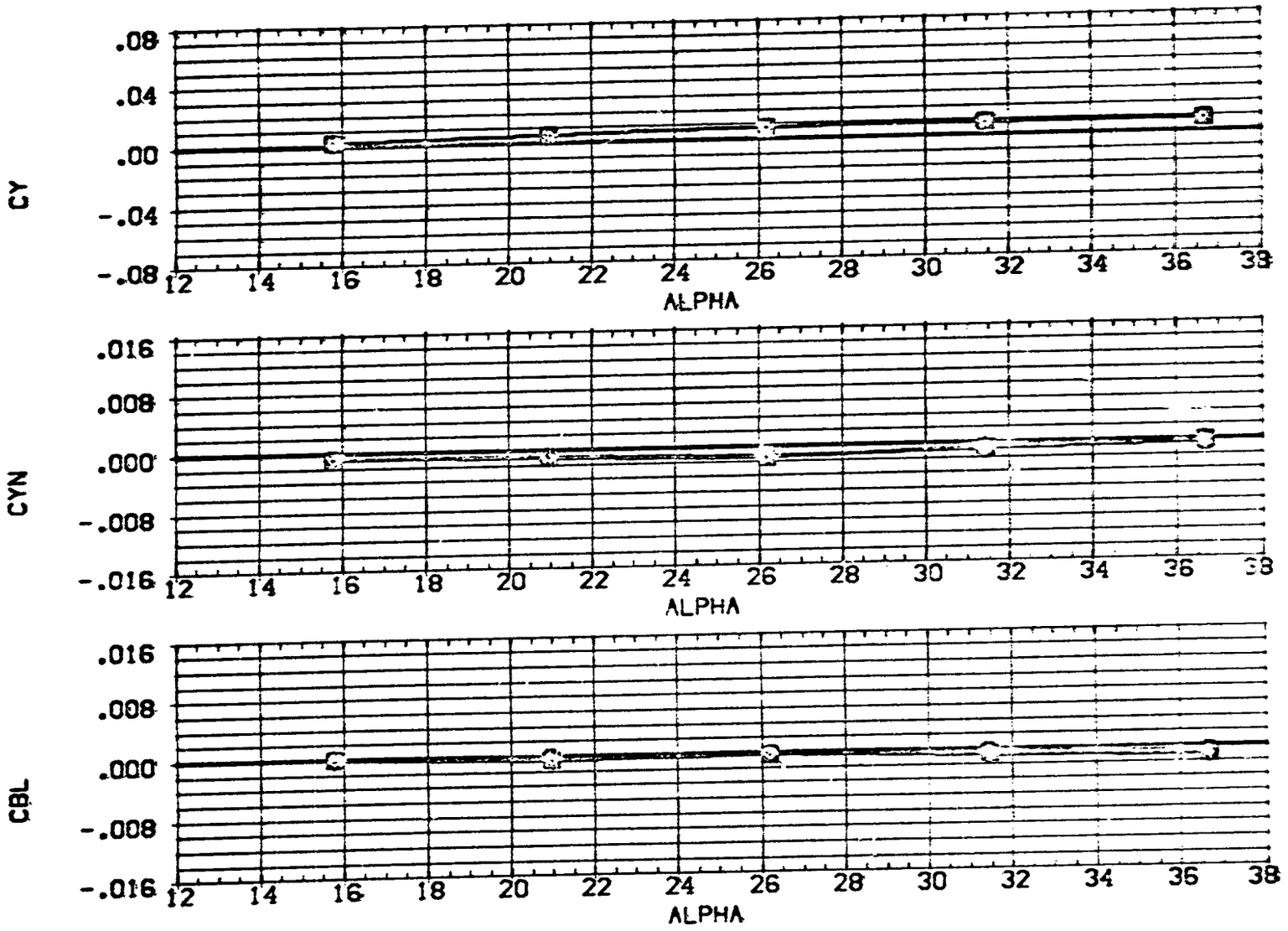
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=0, MACH=4.6)

CA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV014)

SYMBOL	PB-JET	PARAMETRIC VALUES			
○	.042	BETA	.000	MACH	4.600
□	66.281	RN/L	1.720	ELEVTR	-20.000
◇	163.851	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



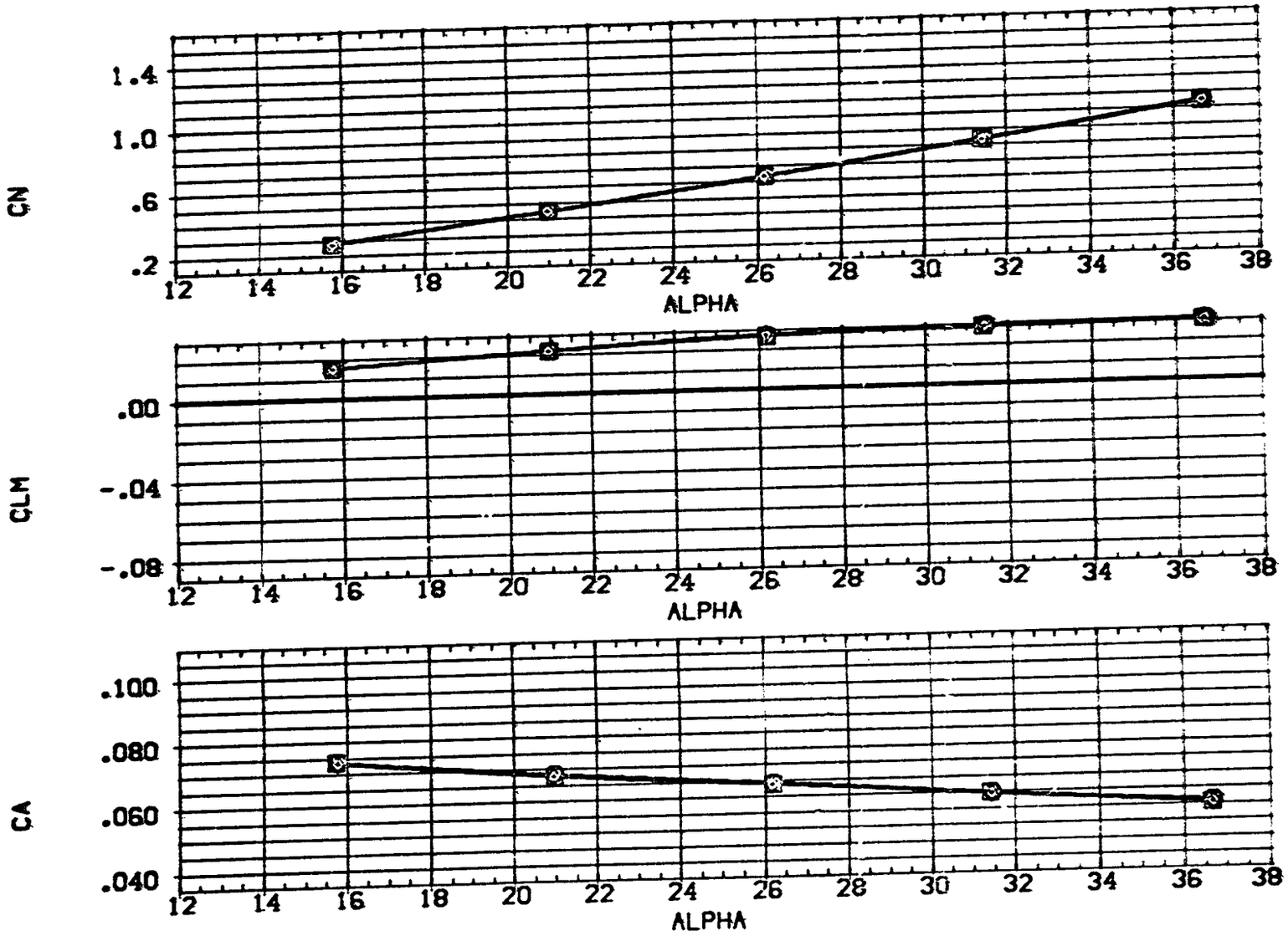
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=0, MACH=4.6)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV017)

SYMBOL	PB-JET	PARAMETRIC VALUES			
○	-.117	BETA	.000	MACH	4.600
□	71.939	RVL	1.720	ELEVTR	-40.000
◇	165.028	AILRON	.000	BDFLAP	-14.250
		RUDF_R	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



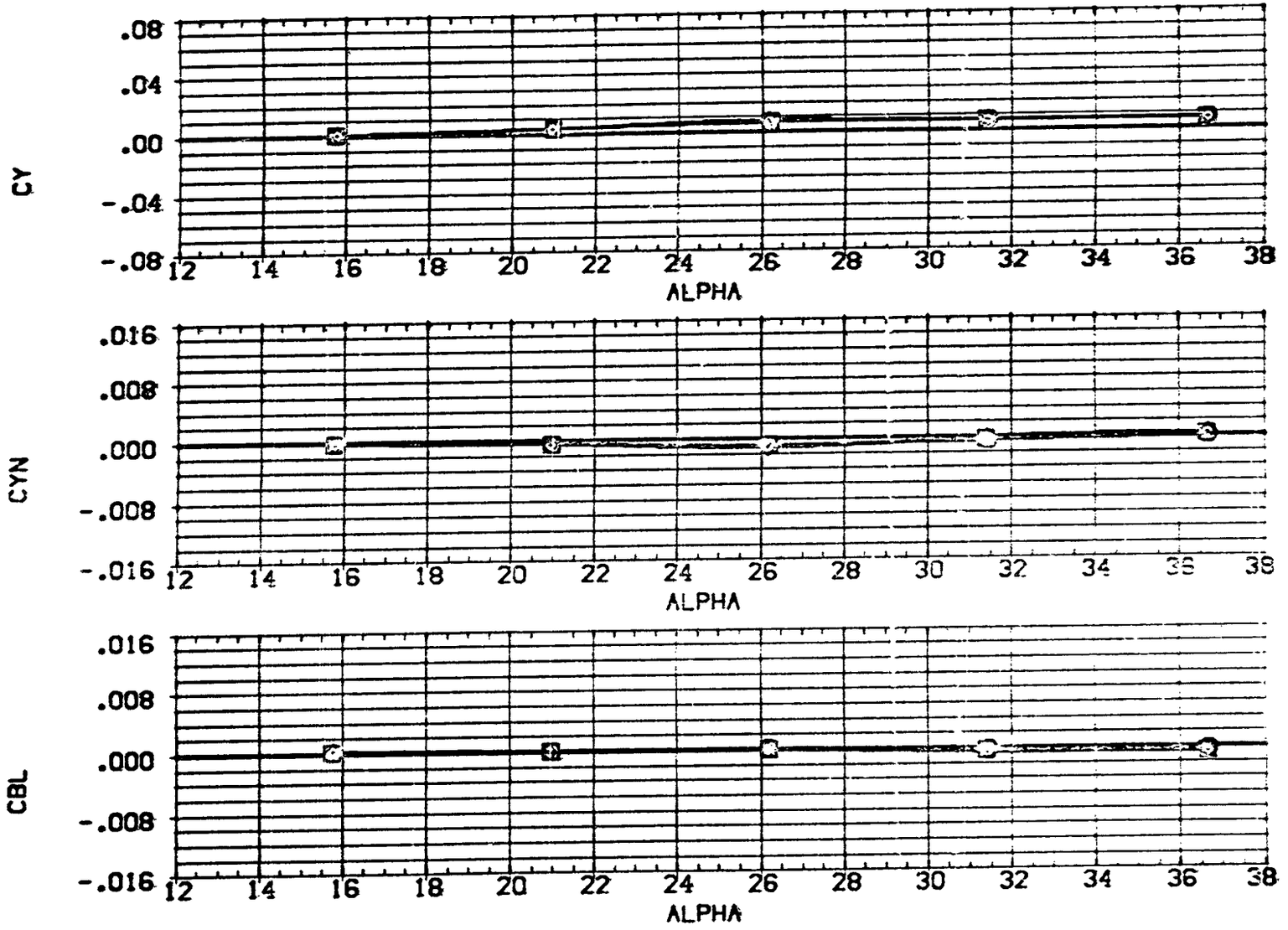
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=0, MACH=4.6)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV017)

SYMBOL	PO-JET		PARAMETRIC VALUES		
○	-.117	BETA	.000	MACH	4.600
□	71.939	RNVL	1.720	ELEVTR	-40.000
◇	165.029	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87..560	SQ.IN.
LREF	7..222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



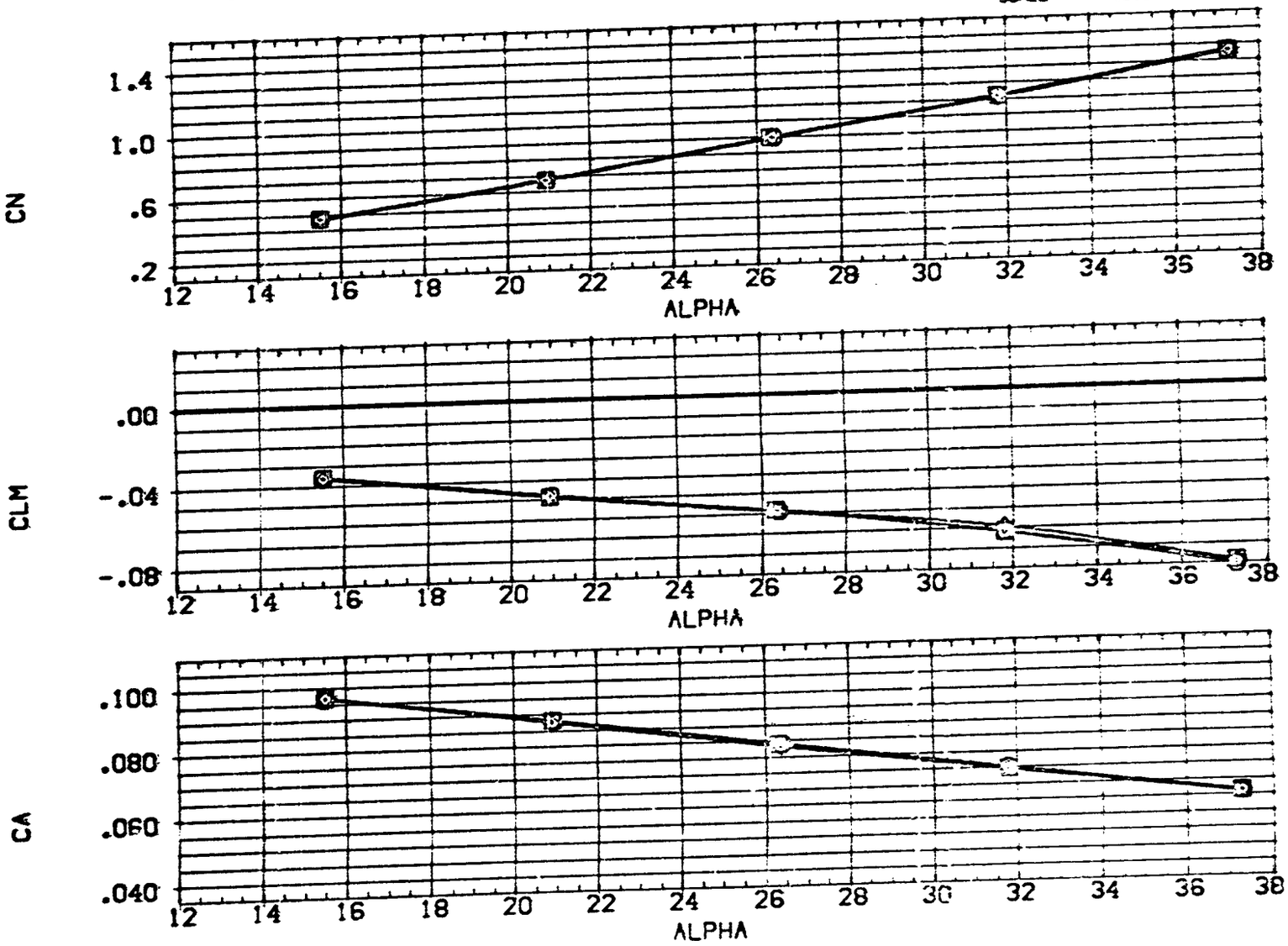
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=0, MACH=4.6)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV001)

SYMBOL	PO-JET		PARAMETRIC VALUES		
○	.316	BETA	-5.000	MACH	2.500
□	63.198	RVL	1.720	ELEVTR	.000
◇	227.005	AILRON	.000	BDFLAP	.000
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMPP	12.5800	INCHES
YMPP	.0000	INCHES
ZMPP	6.0000	INCHES
SCALE	.0150	



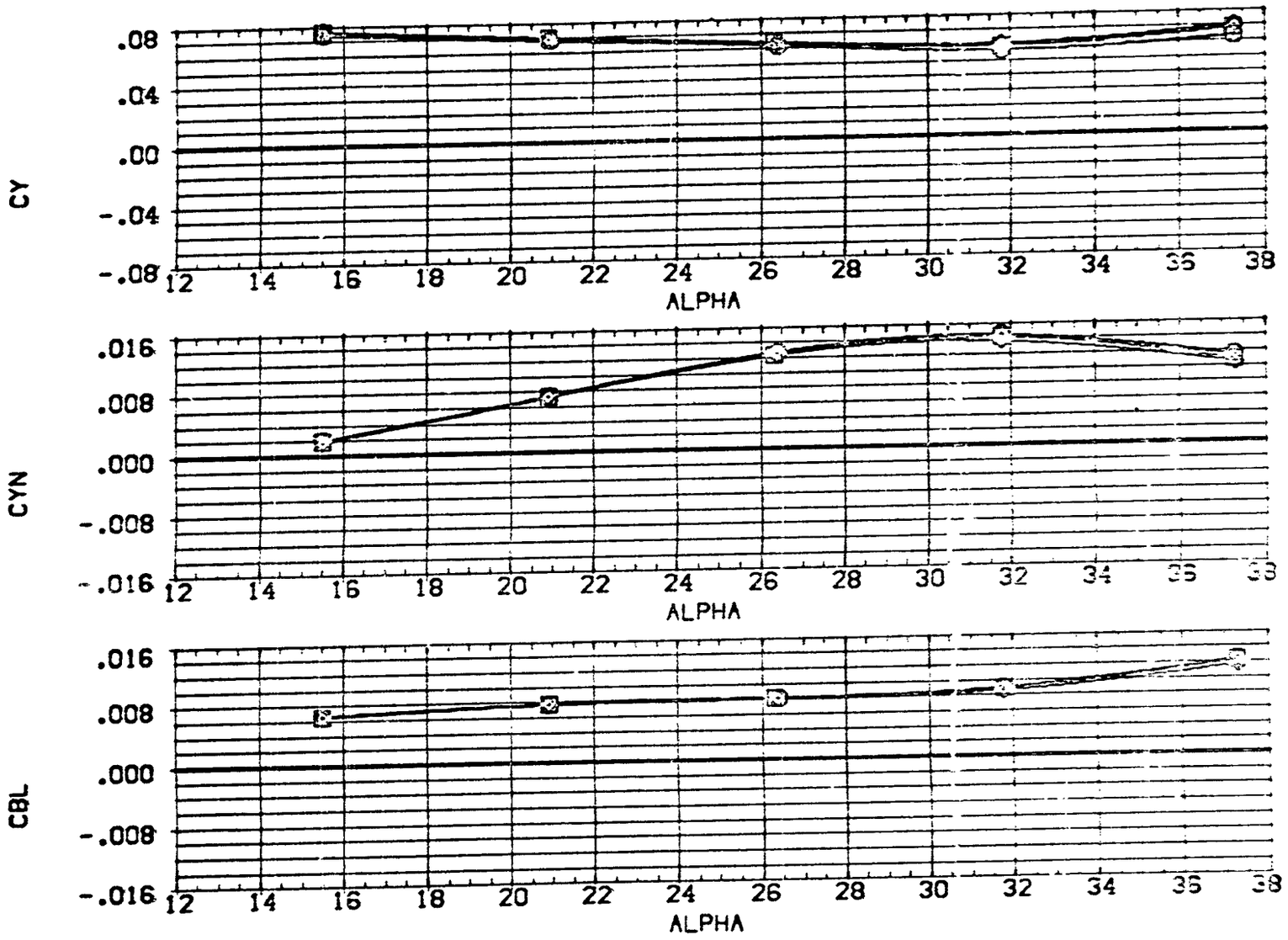
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=-5, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV001)

SYMBOL	PC-JET	PARAMETRIC VALUES			
○	.316	BETA	-5.000	MACH	2.500
◇	63.198	RVL	1.720	ELEVTR	.000
	227.005	AILRON	.000	BDFLAP	.000
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0556	INCHES
XMRP	12.5833	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



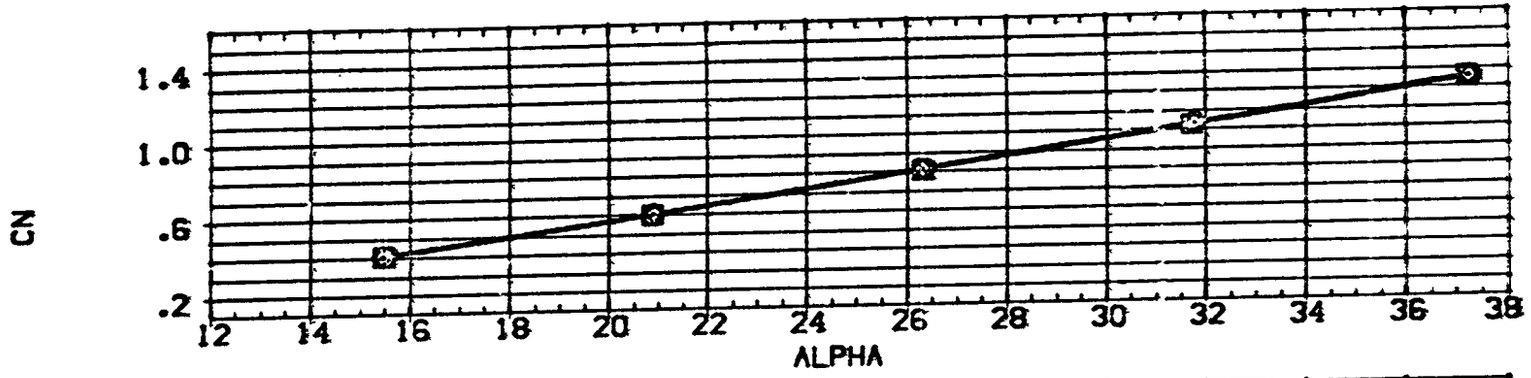
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=-5, MACH=2.5)

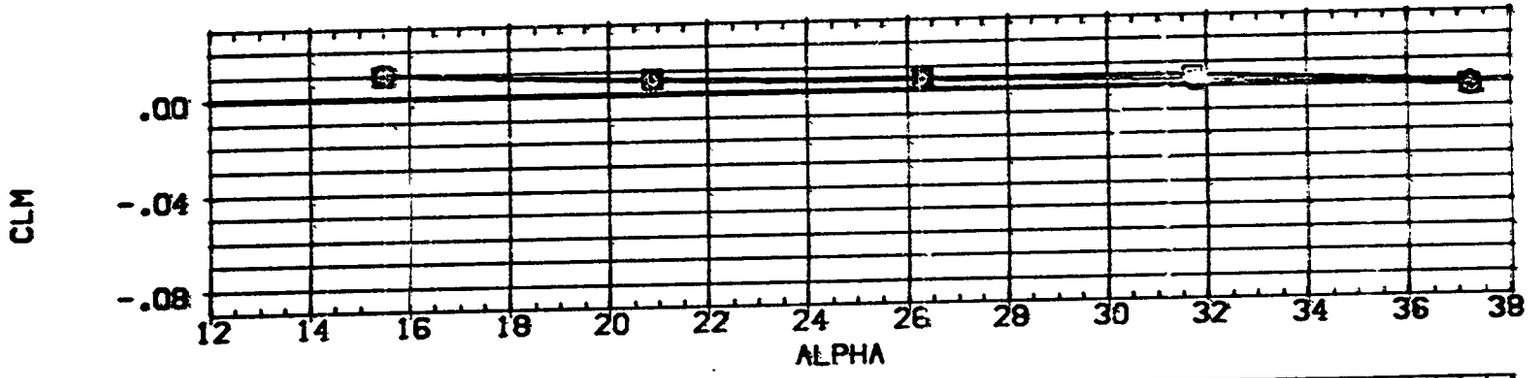
OA-70. UPW 1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV004)

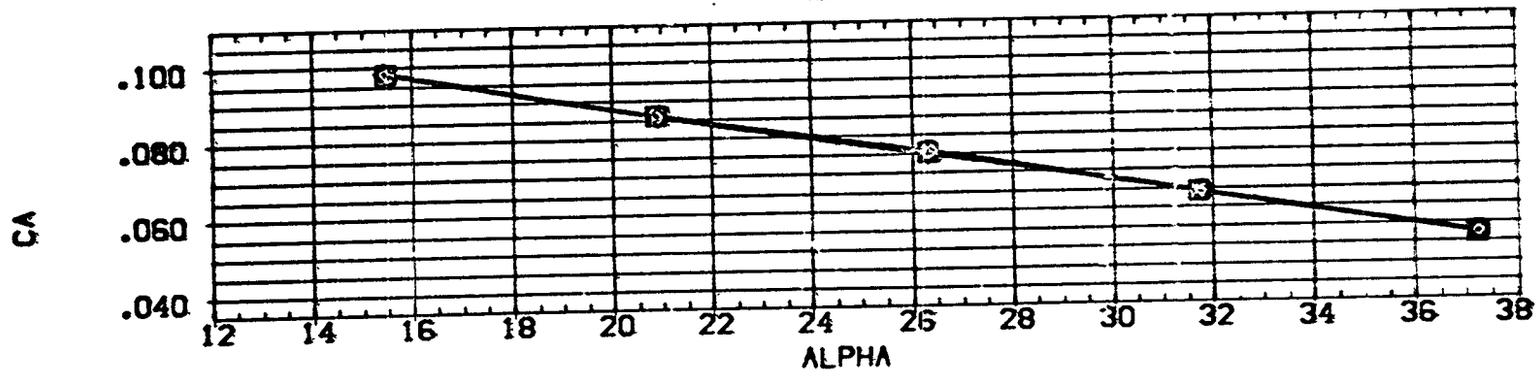
SYMBOL	PO-JET		PARAMETRIC VALUES		
○	.272	BETA	-5.000	MACH	2.500
□	64.051	RVAL	1.720	ELEVTR	-20.000
◇	226.069	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	







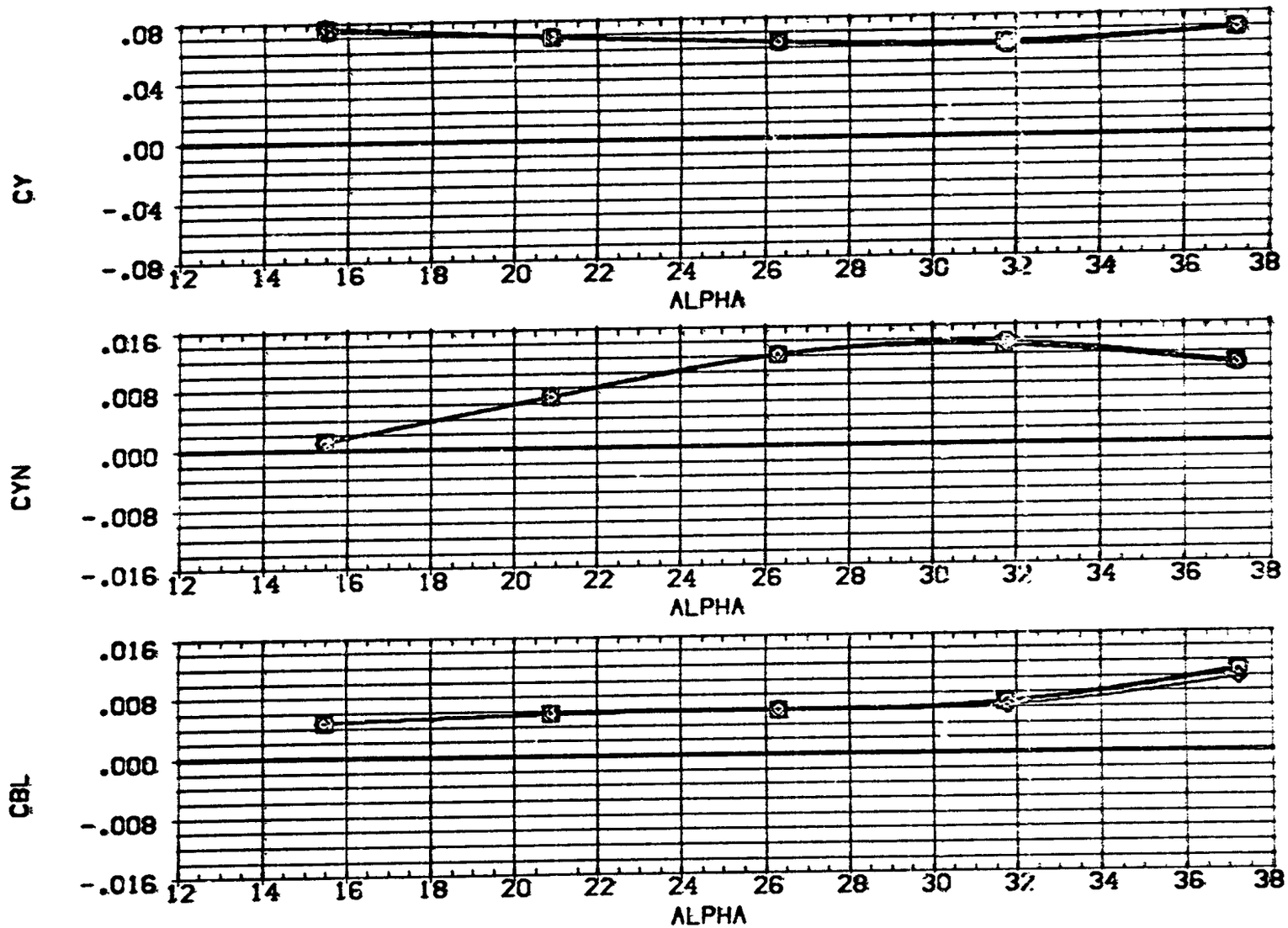
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=-5, MACH=2.5)

CA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV004)

SYMBOL	PO-JET	PARAMETRIC VALUES			
○	.272	BETA	-5.000	MACH	2.500
□	64.051	RNVL	1.720	ELEVTR	-20.000
◇	226.069	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



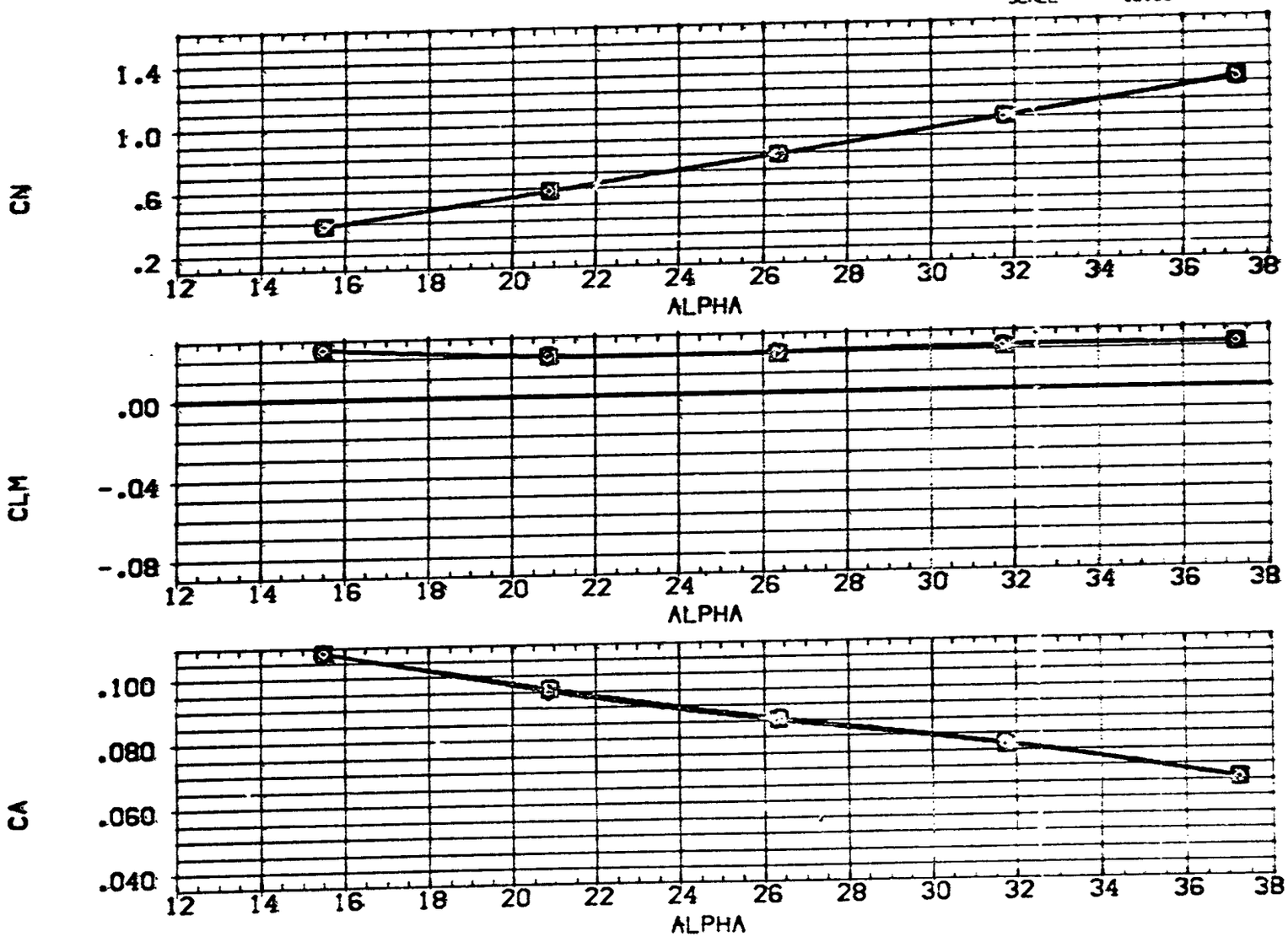
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=-5, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV007)

SYMBOL	PQ-JET		PARAMETRIC VALUES		
○	1.009	BETA	-5.000	MACH	2.500
□	67.695	RWL	1.720	ELEVTR	-40.000
◇	225.683	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1223	INCHES
BREF	14.0560	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=-5, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV007)

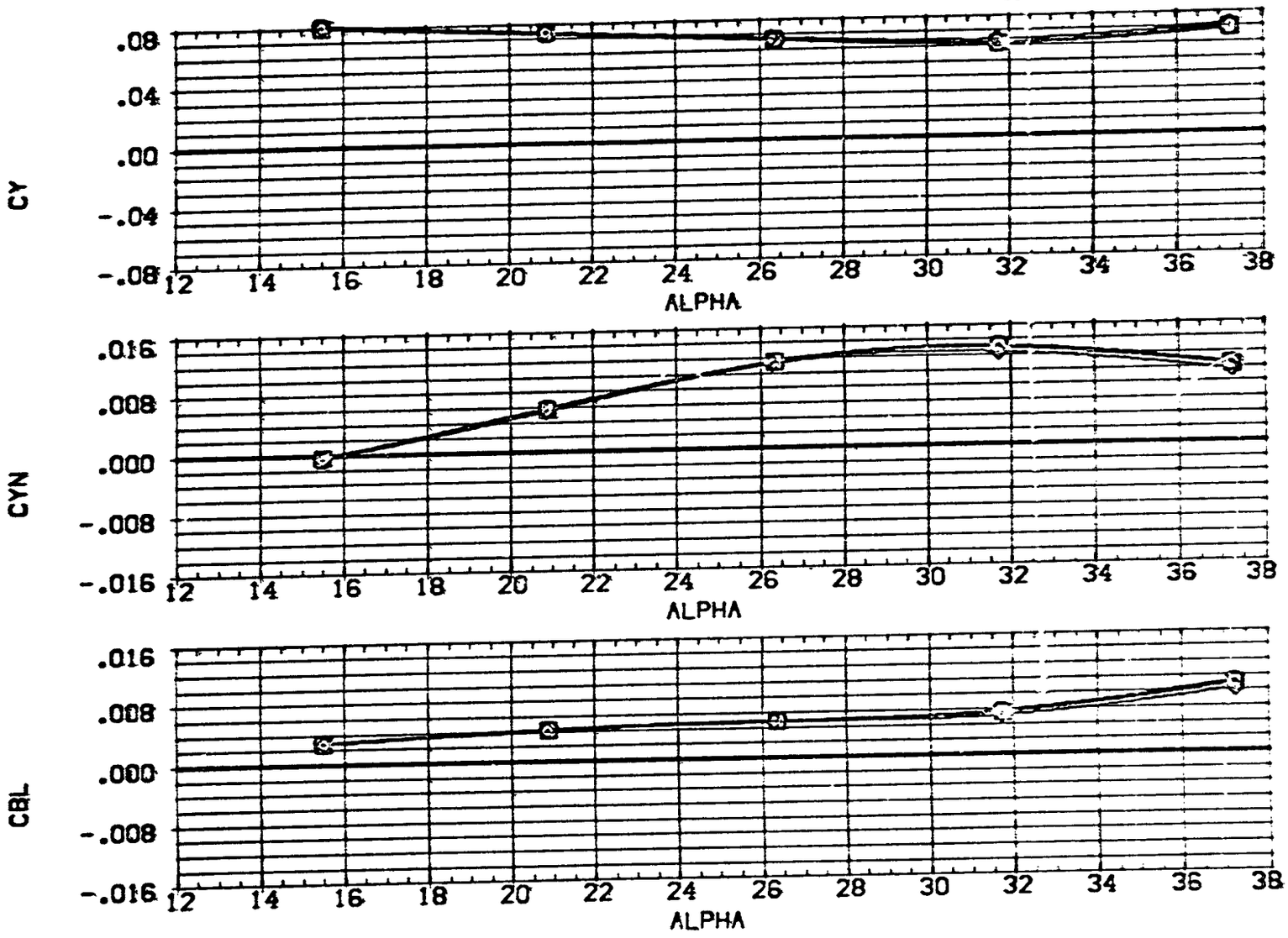
SYMBOL	PO-JET
○	1.009
□	67.695
◇	225.683

PARAMETRIC VALUES

BETA	-5.000	MACH	2.500
RNVL	1.720	ELEVTR	-40.000
AILRON	.000	BOFLAP	-14.250
RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.1250	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



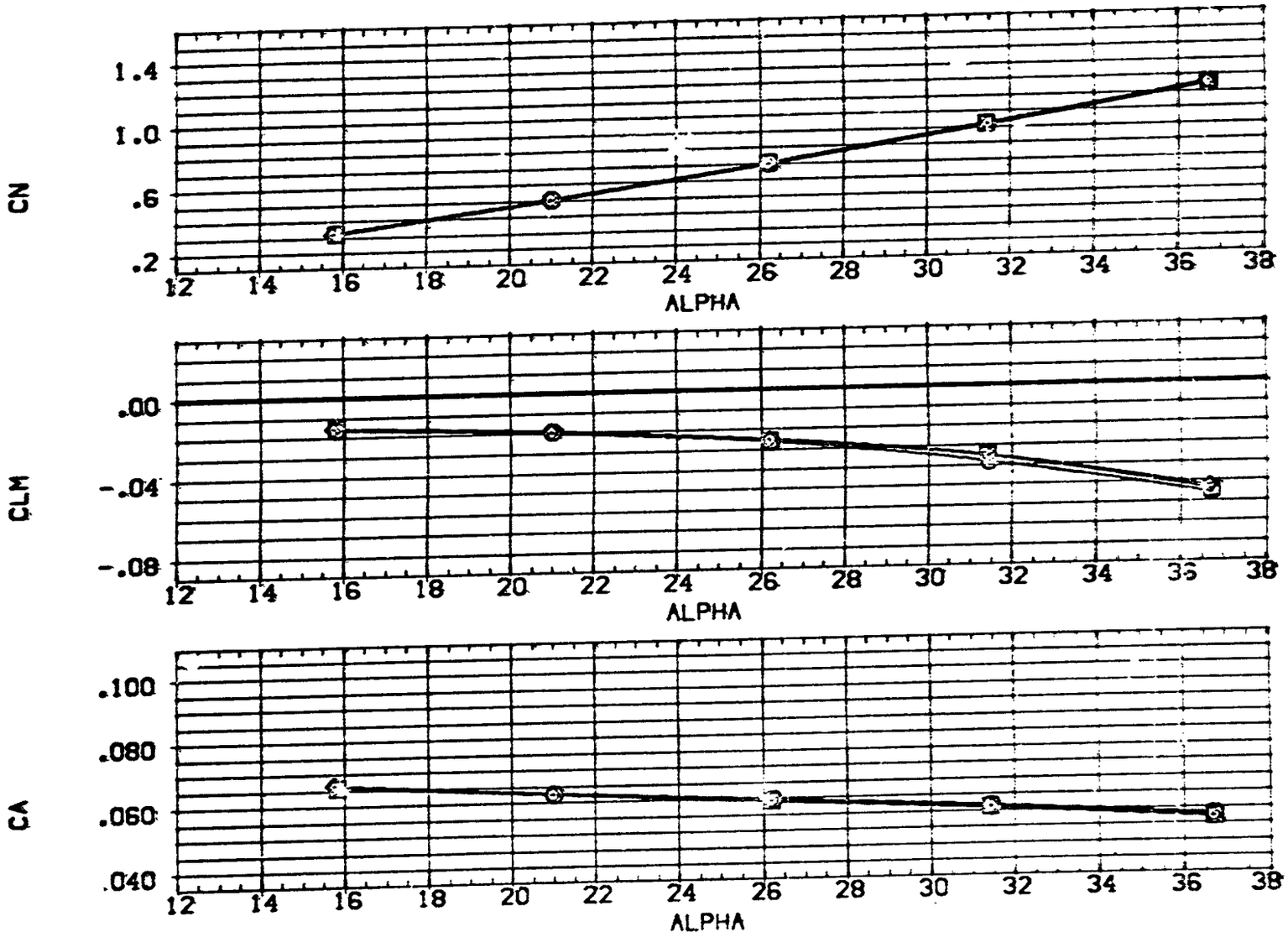
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=-5, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV010)

SYMBOL	PO-JET	PARAMETRIC VALUES			
○	.315	BETA	-5.000	MACH	4.600
□	76.359	RWL	1.720	ELEVTR	.000
◇	162.556	AILRON	.000	BOFLAP	.000
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



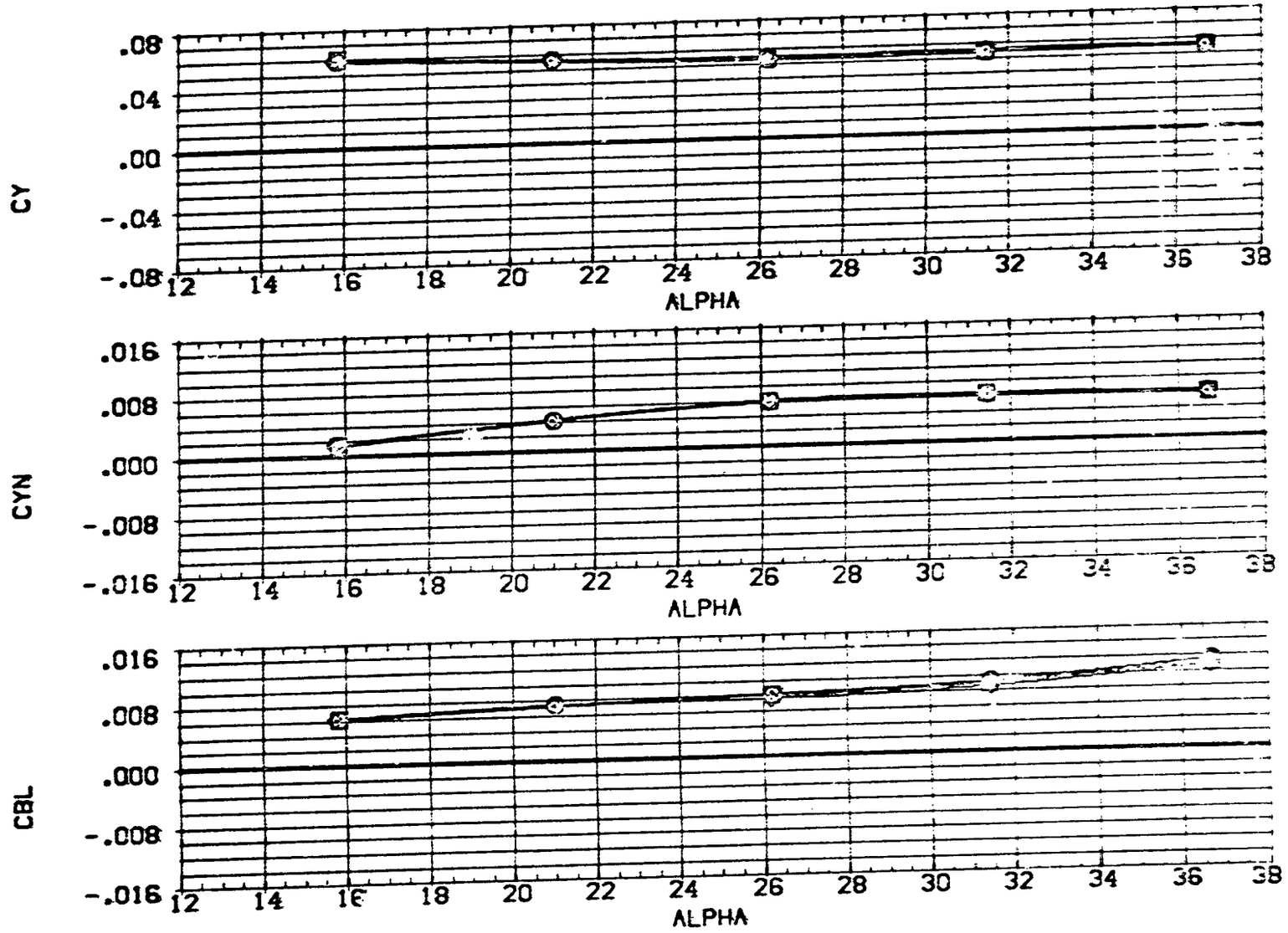
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=-5, MACH=4.6)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV0:0)

SYMBOL	PO-JET		PARAMETRIC VALUES		
○	.315	BETA	-5.000	MACH	4.600
□	70.359	RNVL	1.720	ELEVTR	.000
◇	162.556	AILRON	.000	BOFLAP	.000
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ. IN.
LREF	7.122	INCHES
BREF	14.056	INCHES
XMRP	12.500	INCHES
YMRP	.000	INCHES
ZMRP	6.000	INCHES
SCALE	.0150	



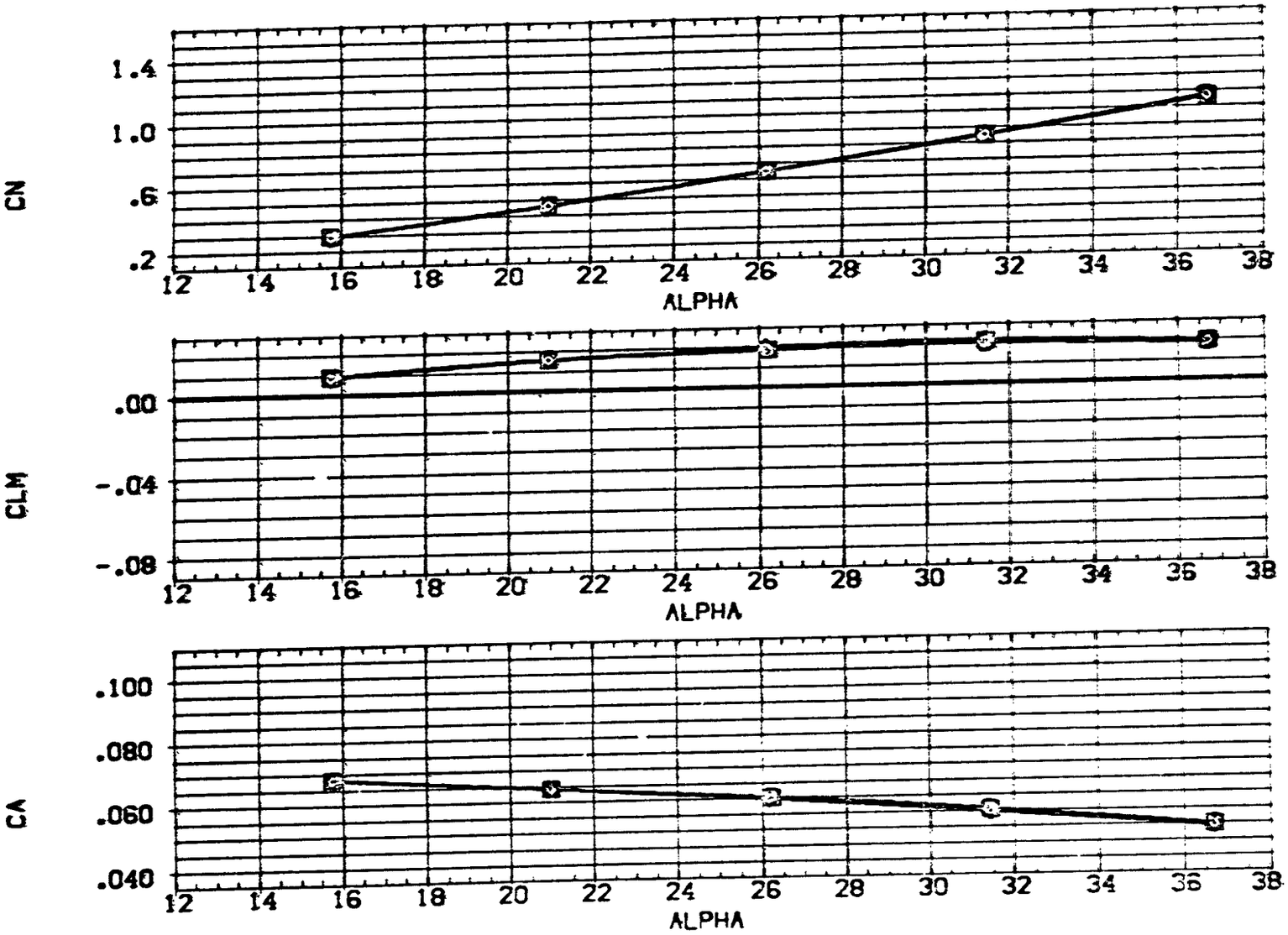
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=-5, MACH=4.6)

CA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV013)

SYMBOL	PB-JET	PARAMETRIC VALUES			
○	.042	BETA	-5.000	MACH	4.600
□	69.414	RNVL	1.720	ELEVTR	-20.000
◇	163.401	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.FT.
BREF	7.1222	INCHES
XMRP	14.0560	INCHES
YMRP	12.5800	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



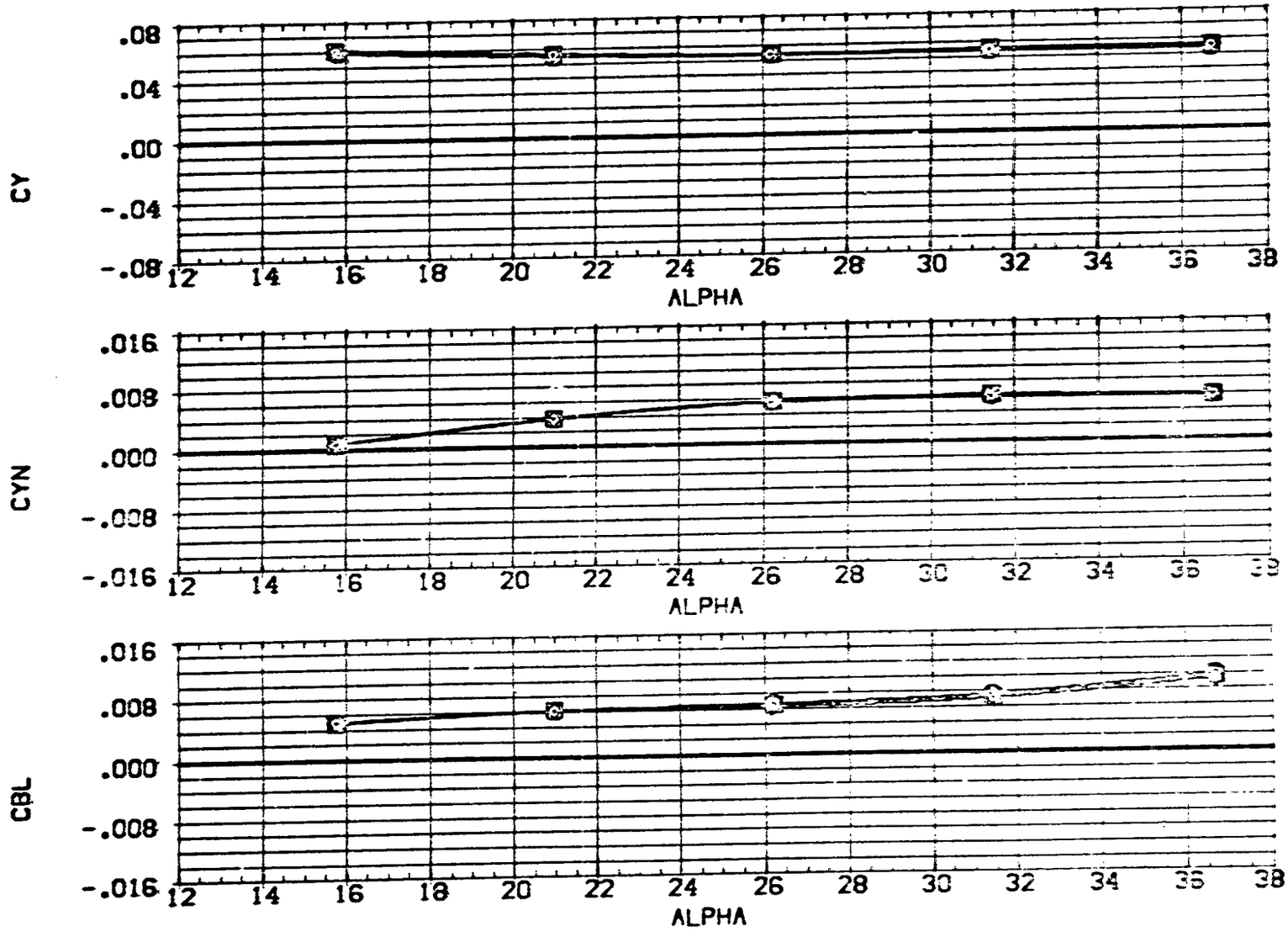
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=-5, MACH=4.6)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV013)

SYMBOL	PO-JET	PARAMETRIC VALUES			
○	.042	BETA	-5.000	MACH	4.600
□	69.414	RN/L	1.720	ELEVTR	-20.000
◇	163.401	AILRON	.000	BOFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1333	INCHES
BREF	14.0000	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.3000	INCHES
SCALE	.0150	



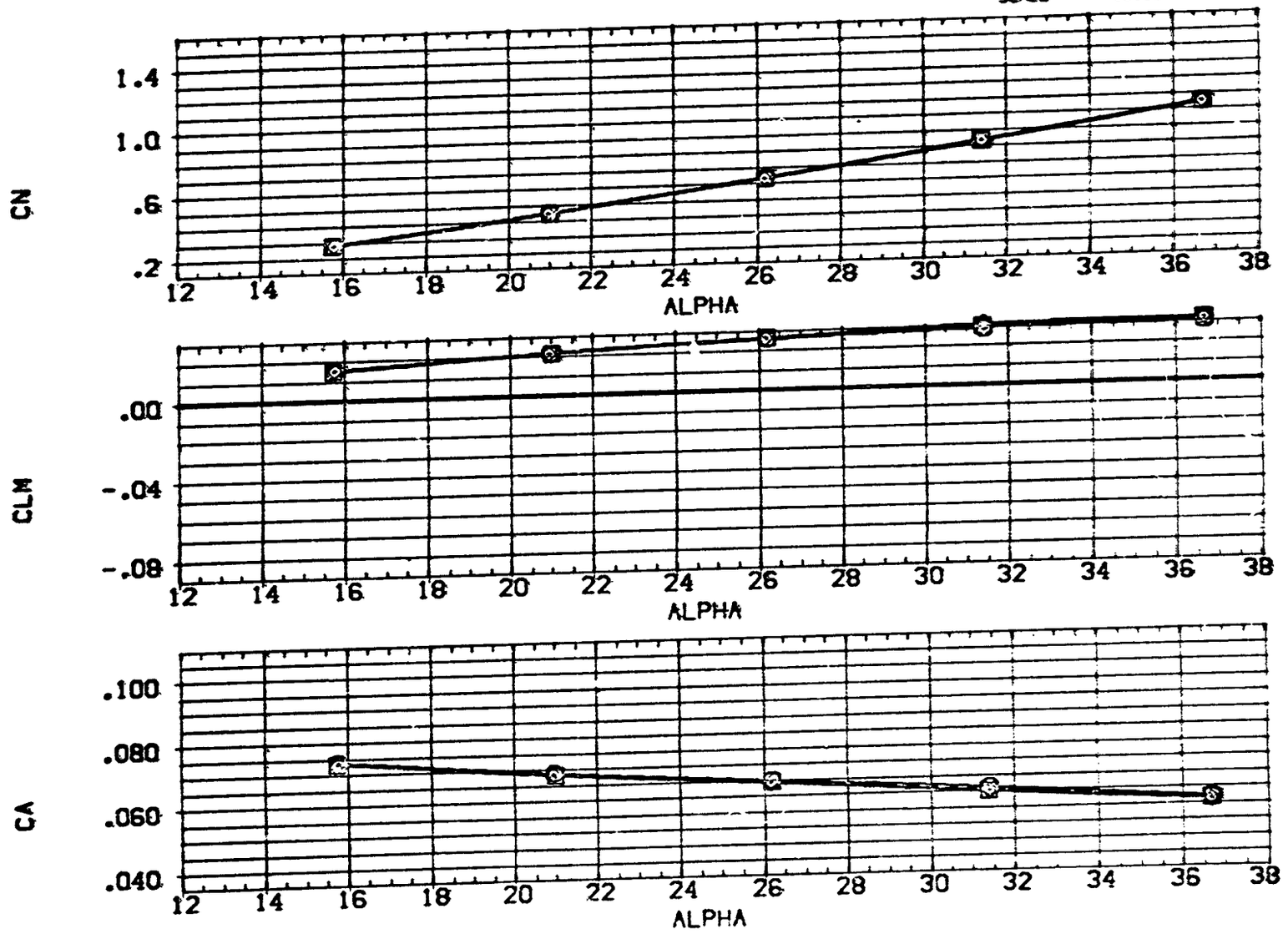
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=-5, MACH=4.6)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV016)

SYMBOL	PO-JET		PARAMETRIC VALUES		
○	.112	BETA	-5.000	MACH	4.600
□	71.943	RN/L	1.720	ELEVTR	-40.000
◇	165.035	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



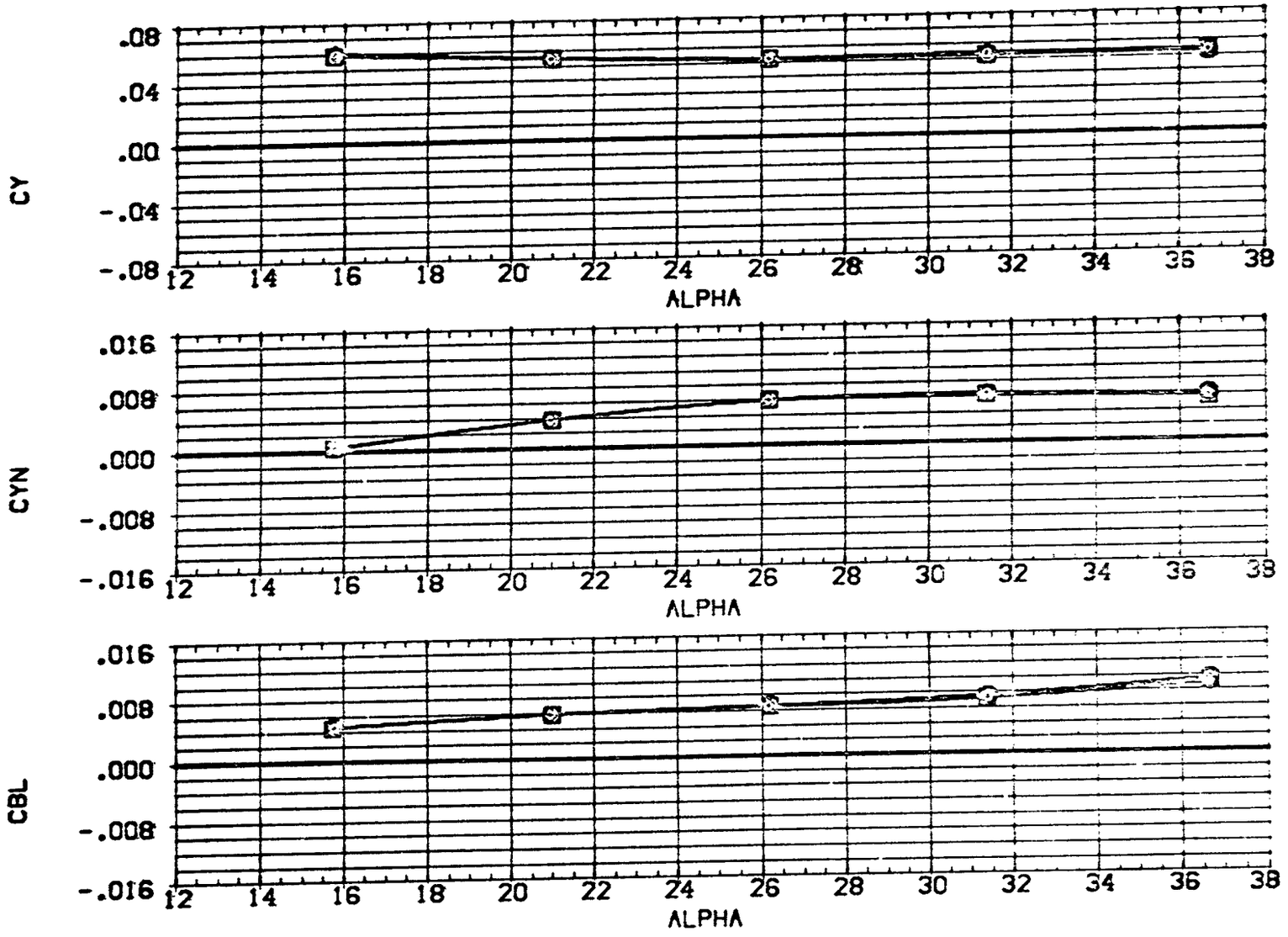
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=-5, MACH=4.6)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV016)

SYMBOL	PO-JET		PARAMETRIC VALUES		
○	.112	BETA	-5.000	MACH	4.600
□	71.943	RVL	1.720	ELEVTR	-40.000
◇	165.035	AILRON	.000	BOFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



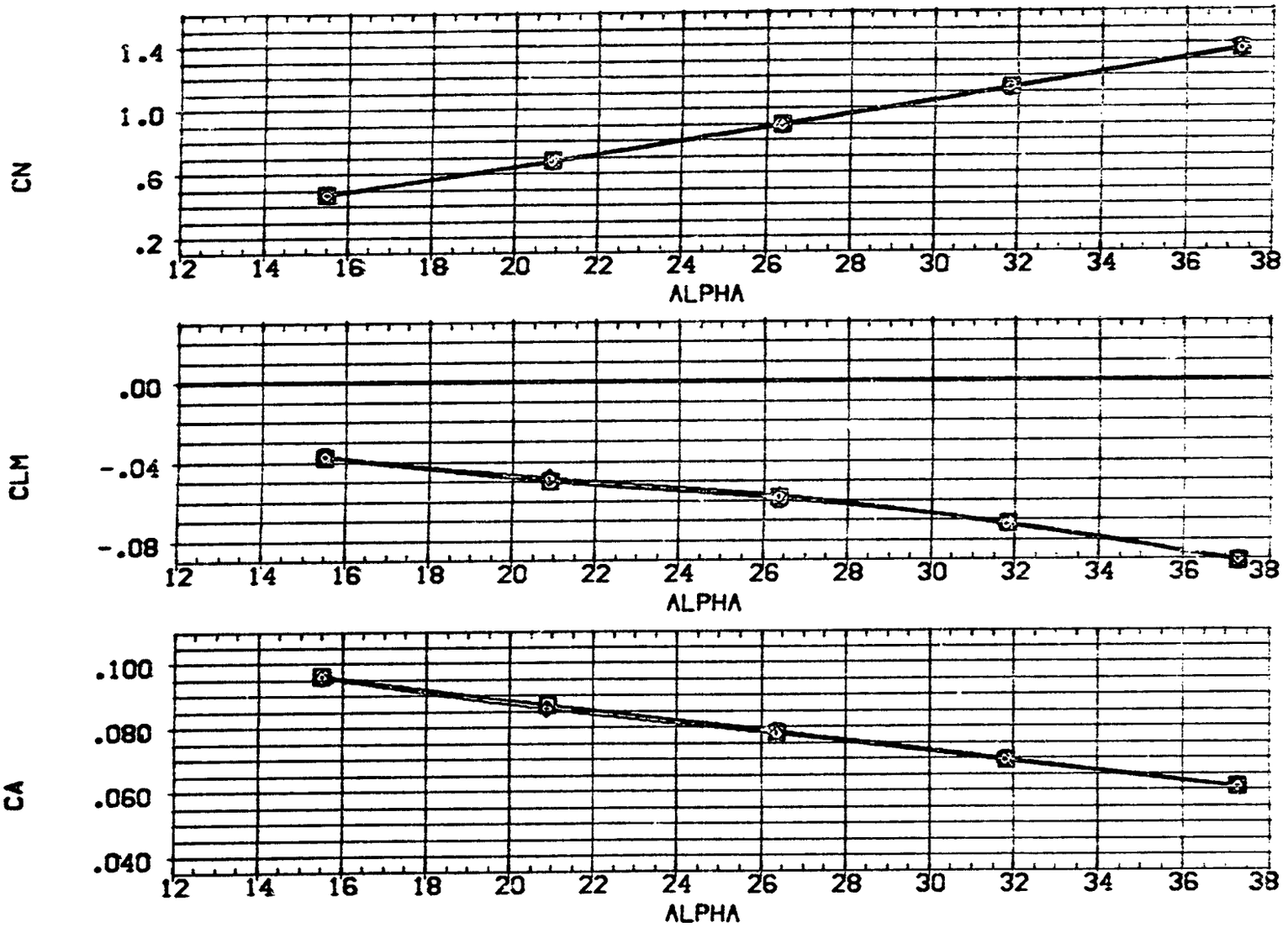
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=-5, MACH=4.6)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPVOC3)

SYMBOL	PB-JET	PARAMETRIC VALUES			
○	.092	BETA	5.000	MACH	2.500
□	69.240	RN/L	1.720	ELEVTR	.000
◇	223.649	AILRON	.000	BDFLAP	.000
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



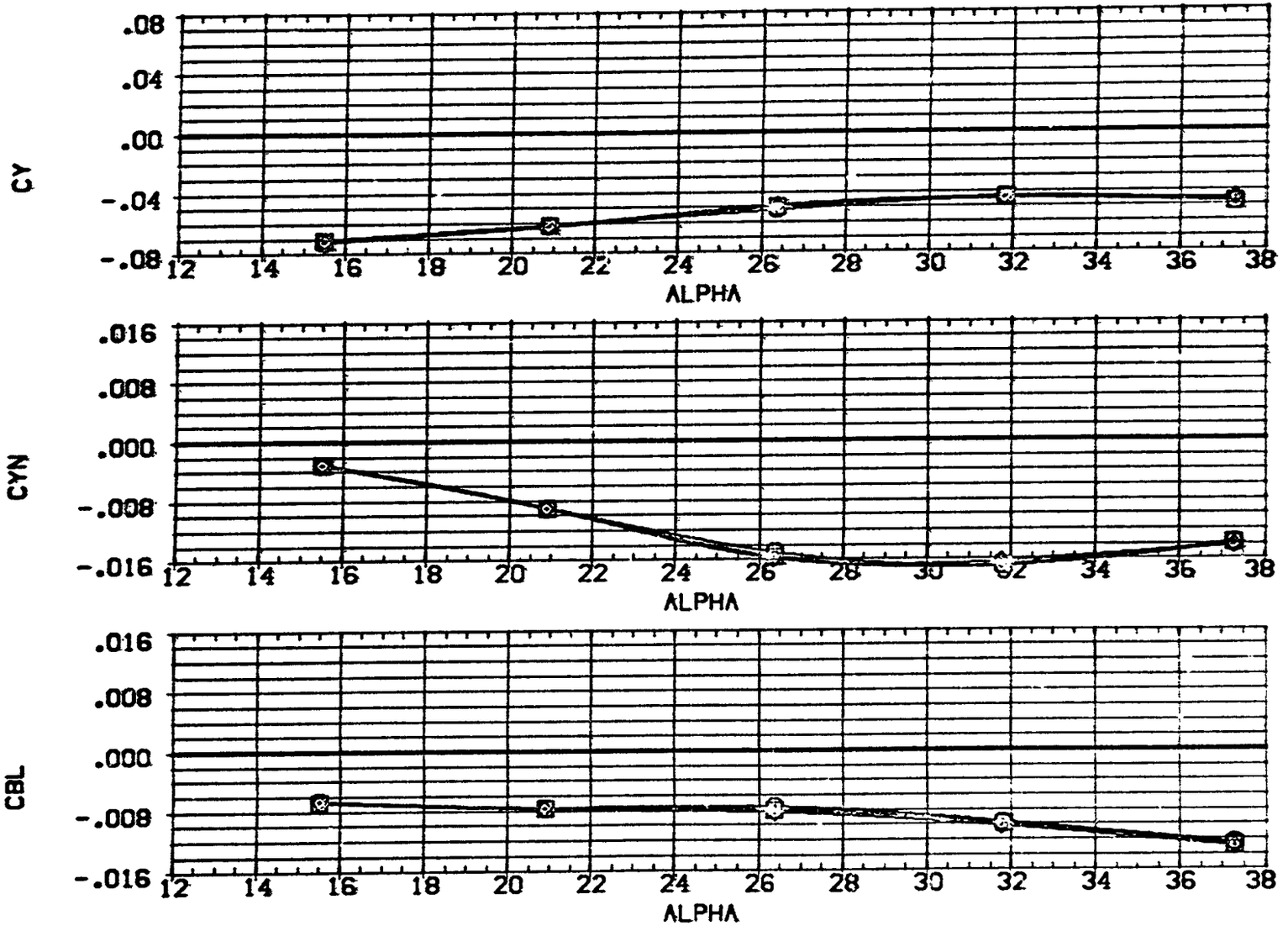
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=5, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV003)

SYMBOL	PO-JET		PARAMETRIC VALUES		
○	.092	BETA	5.000	MACH	2.500
□	69.240	RNVL	1.720	ELEVTR	.000
◇	223.649	AILRON	.000	BDFLAP	.000
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



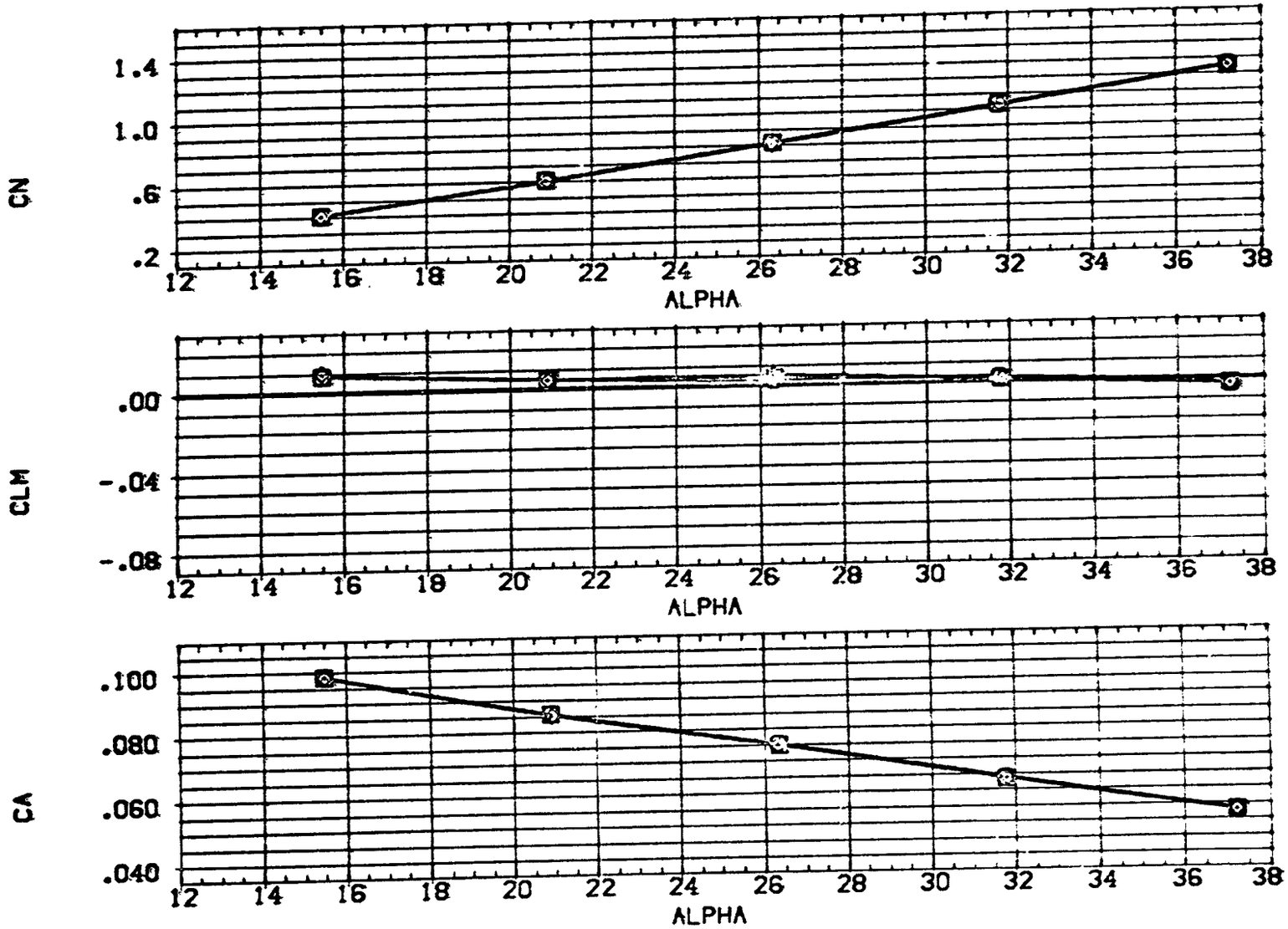
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=5, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5MGN19)(W107E23)(V7R5)(RPV006)

SYMBOL	PO-JET	PARAMETRIC VALUES			
○	.276	BETA	5.000	MACH	2.500
□	69.159	RNVL	1.720	ELEVTR	-20.000
◇	228.534	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



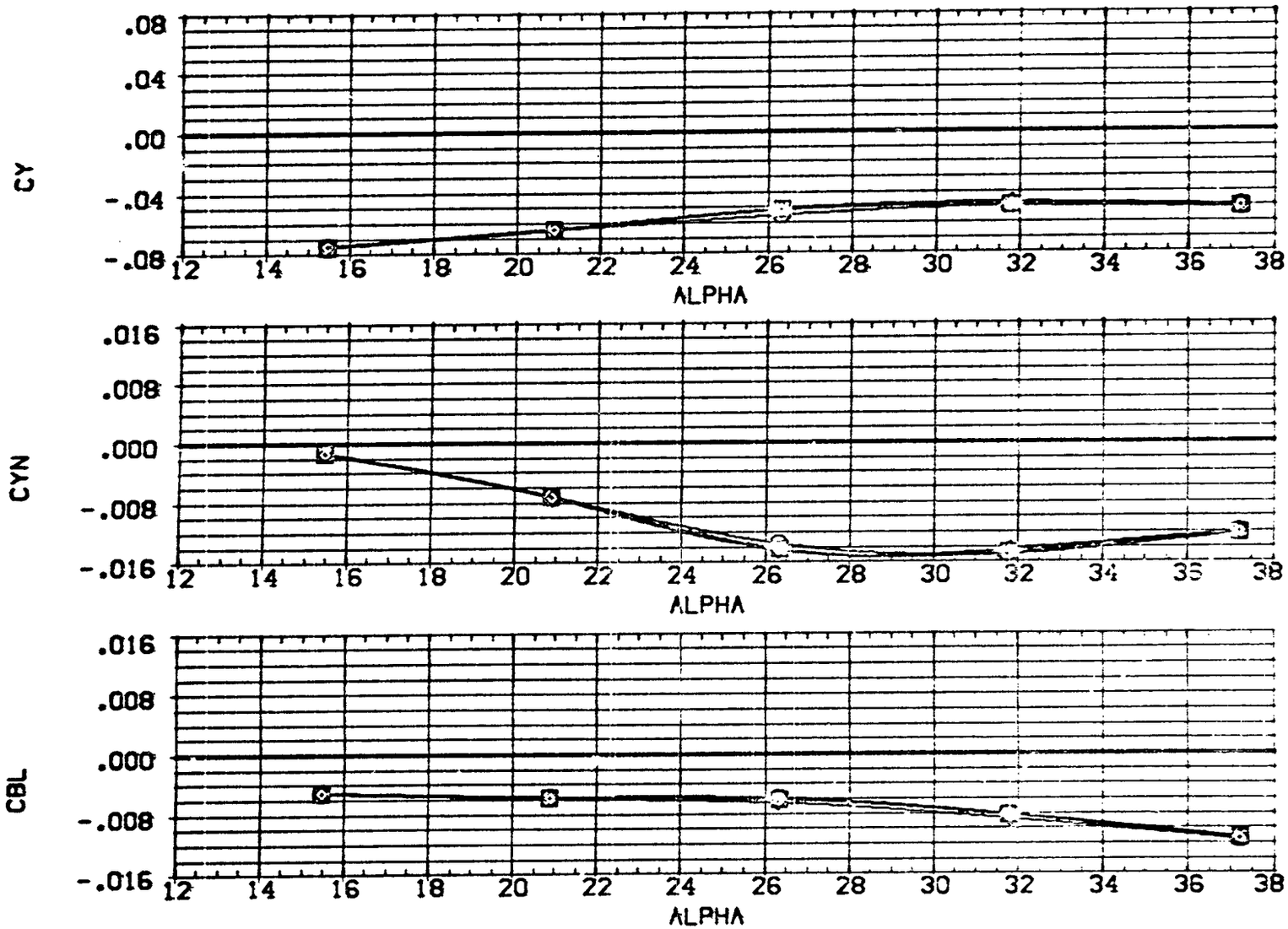
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=5, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV006)

SYMBOL	PO-JET	PARAMETRIC VALUES			
○	.276	BETA	5.000	MACH	2.500
□	63.159	RNVL	1.720	ELEVTR	-20.000
◇	228.534	AILRON	.000	BOFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



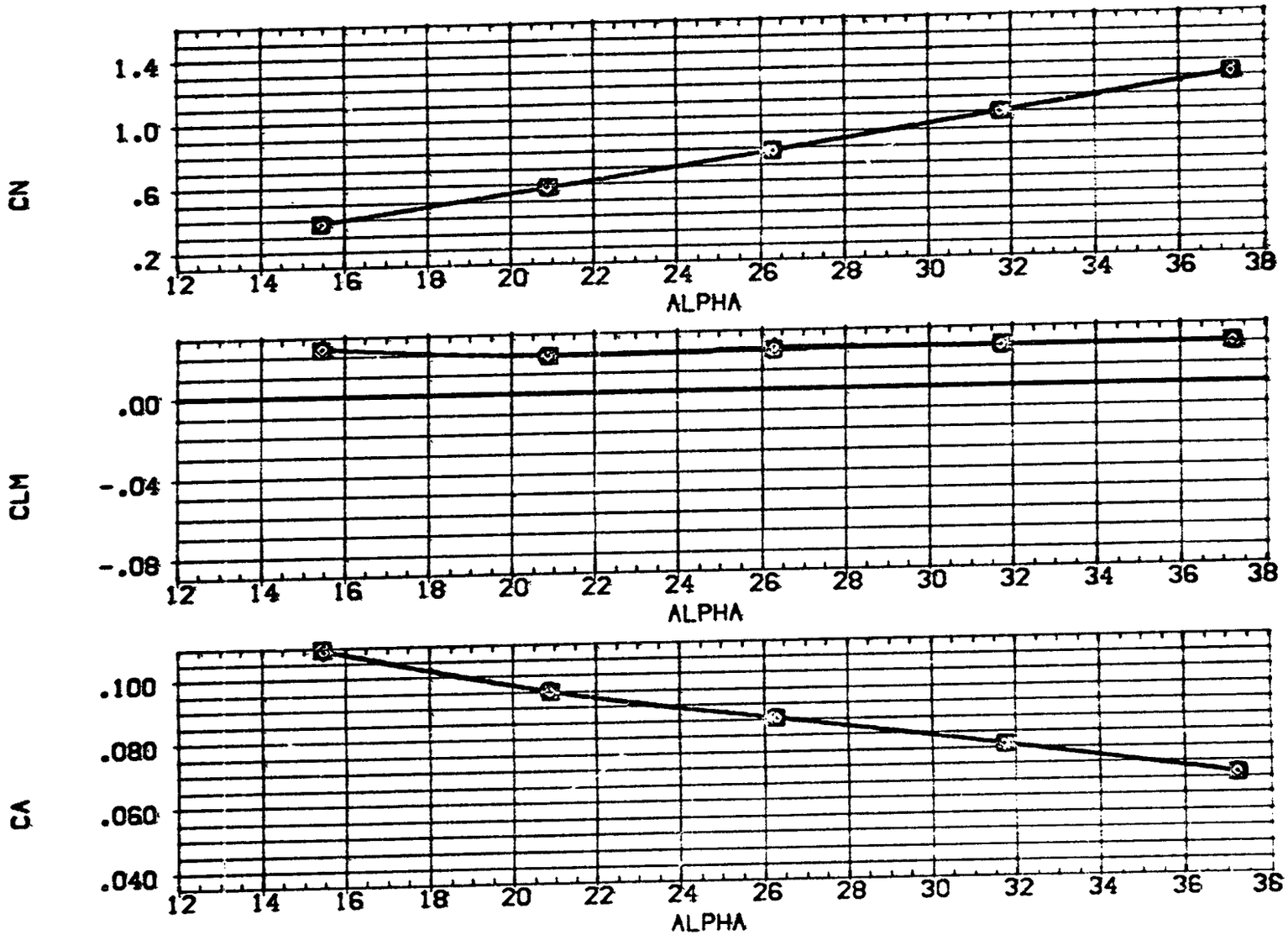
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=5, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV009)

SYMBOL	PO-JET		PARAMETRIC VALUES		
○	.562	BETA	-5.000	MACH	2.500
□	63.892	RNVL	1.720	ELEVTR	-40.000
◇	227.027	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



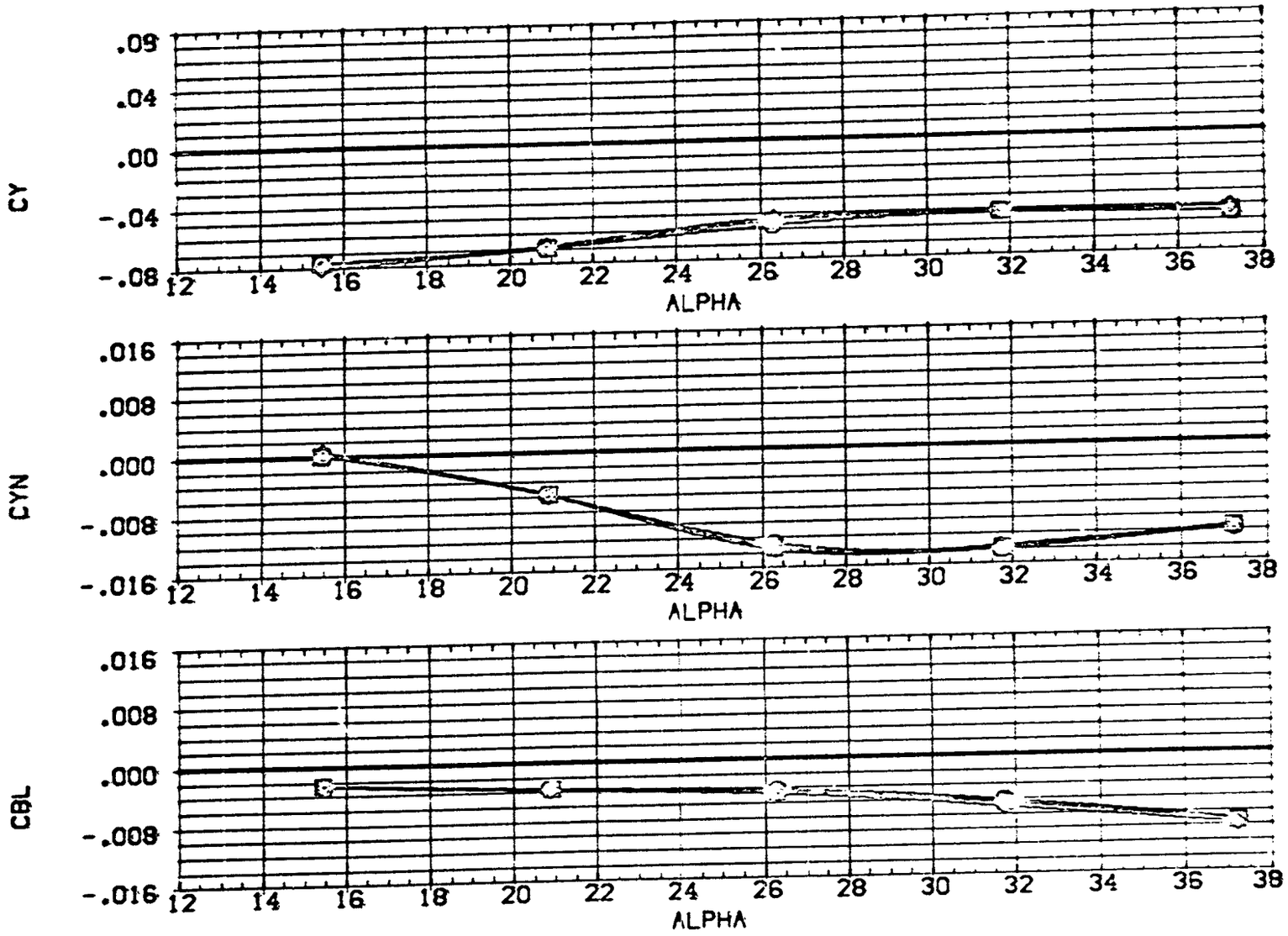
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=5, MACH=2.5)

CA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV009)

SYMBOL	PO-JET	PARAMETRIC VALUES			
◇ 110	.562	BETA	5.000	MACH	2.500
	63.892	RNVL	1.720	ELEVTR	-40.000
	227.027	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



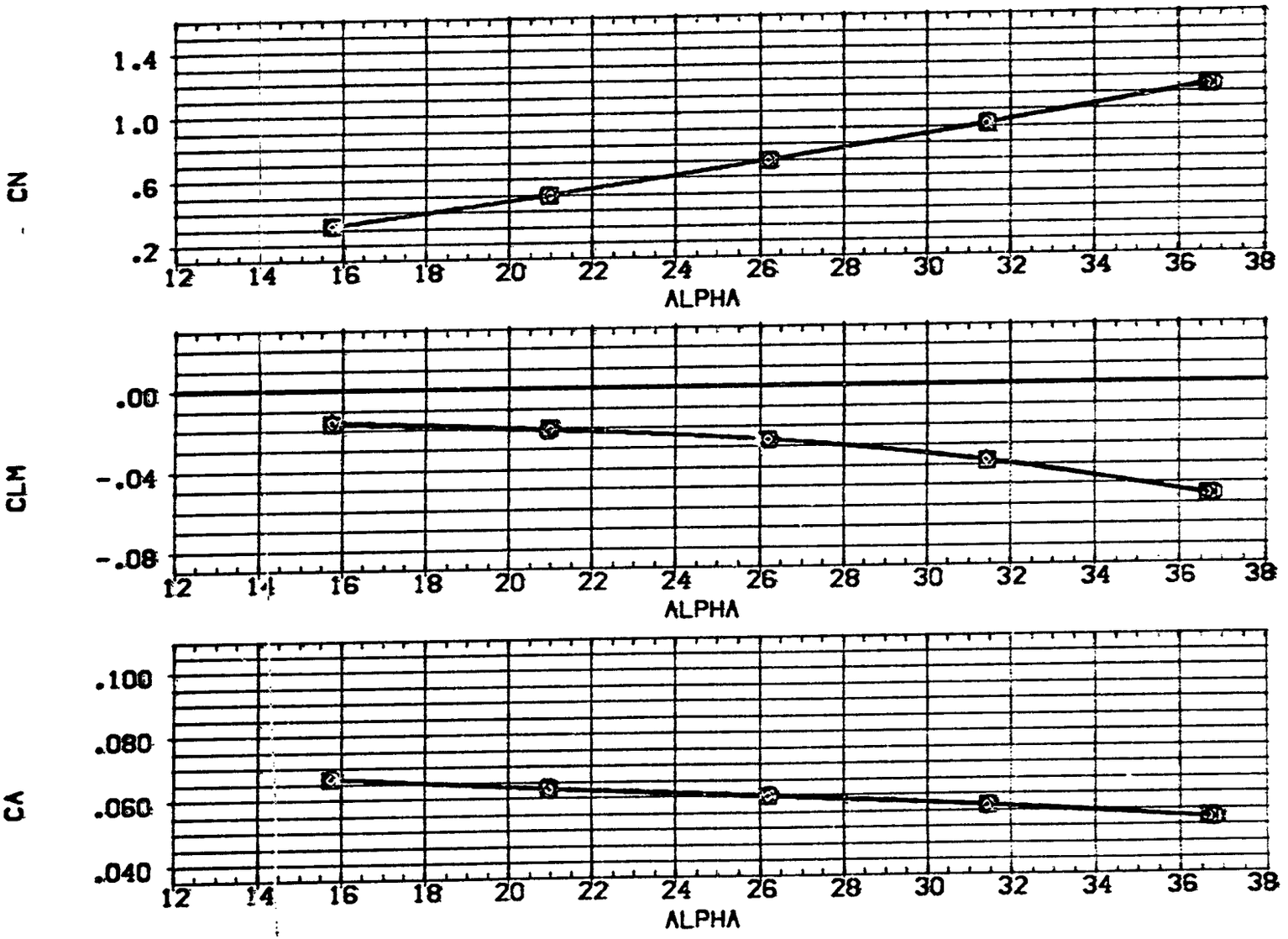
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=5, MACH=2.5)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV012)

SYMBOL	PO-JET		PARAMETRIC VALUES		
○	.317	BETA	5.000	MACH	4.600
□	58.277	RNVL	1.720	ELEVTR	.000
◇	163.231	AILRON	.000	BDFLAP	.000
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1550	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



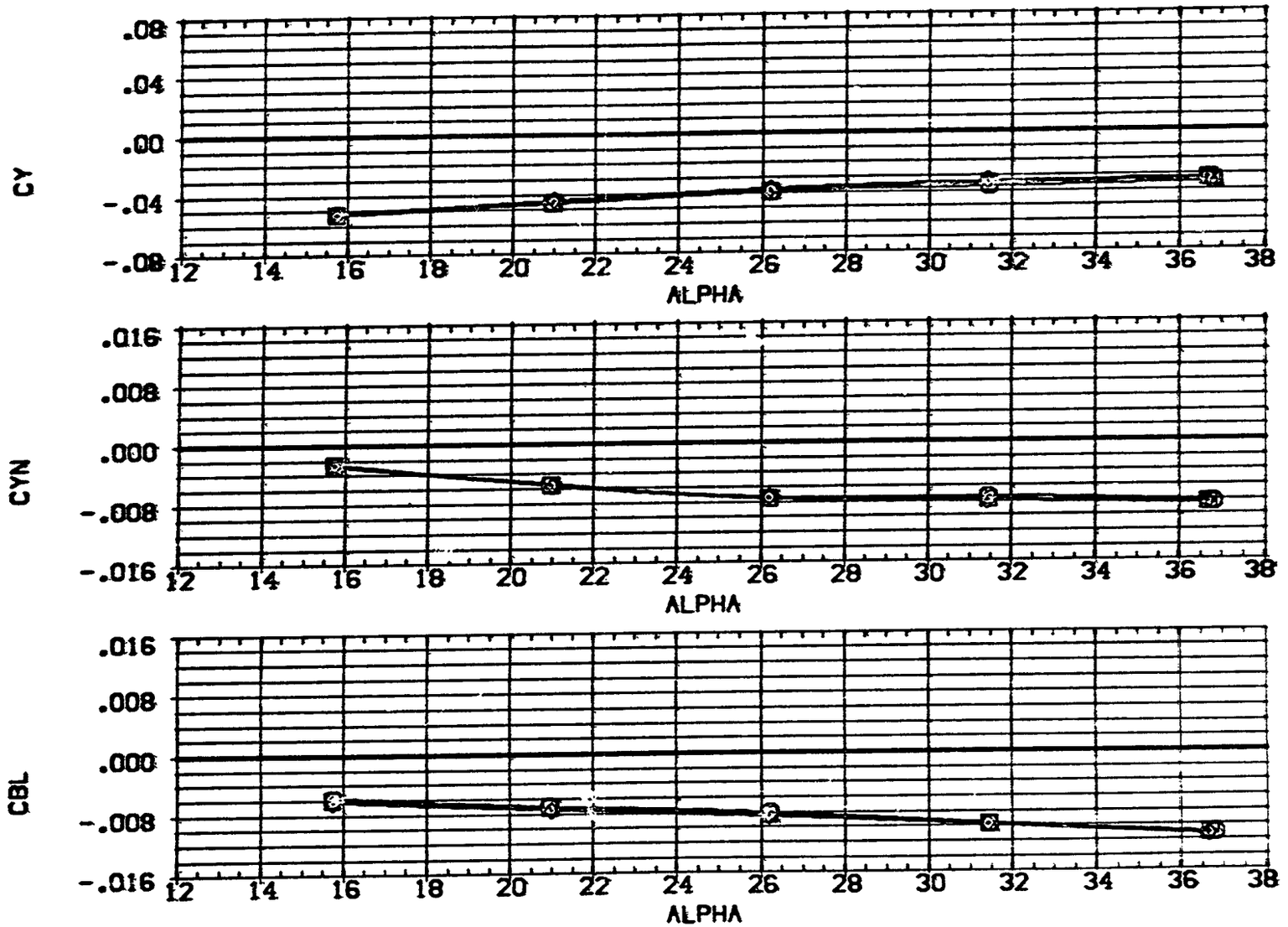
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=5, MACH=4.6)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV012)

SYMBOL	PO-JET		PARAMETRIC VALUES		
○	.317	BETA	5.000	MACH	4.600
□	58.277	RNVL	1.720	ELEVTR	.000
◇	163.231	AILRON	.000	BDFLAP	.000
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1272	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



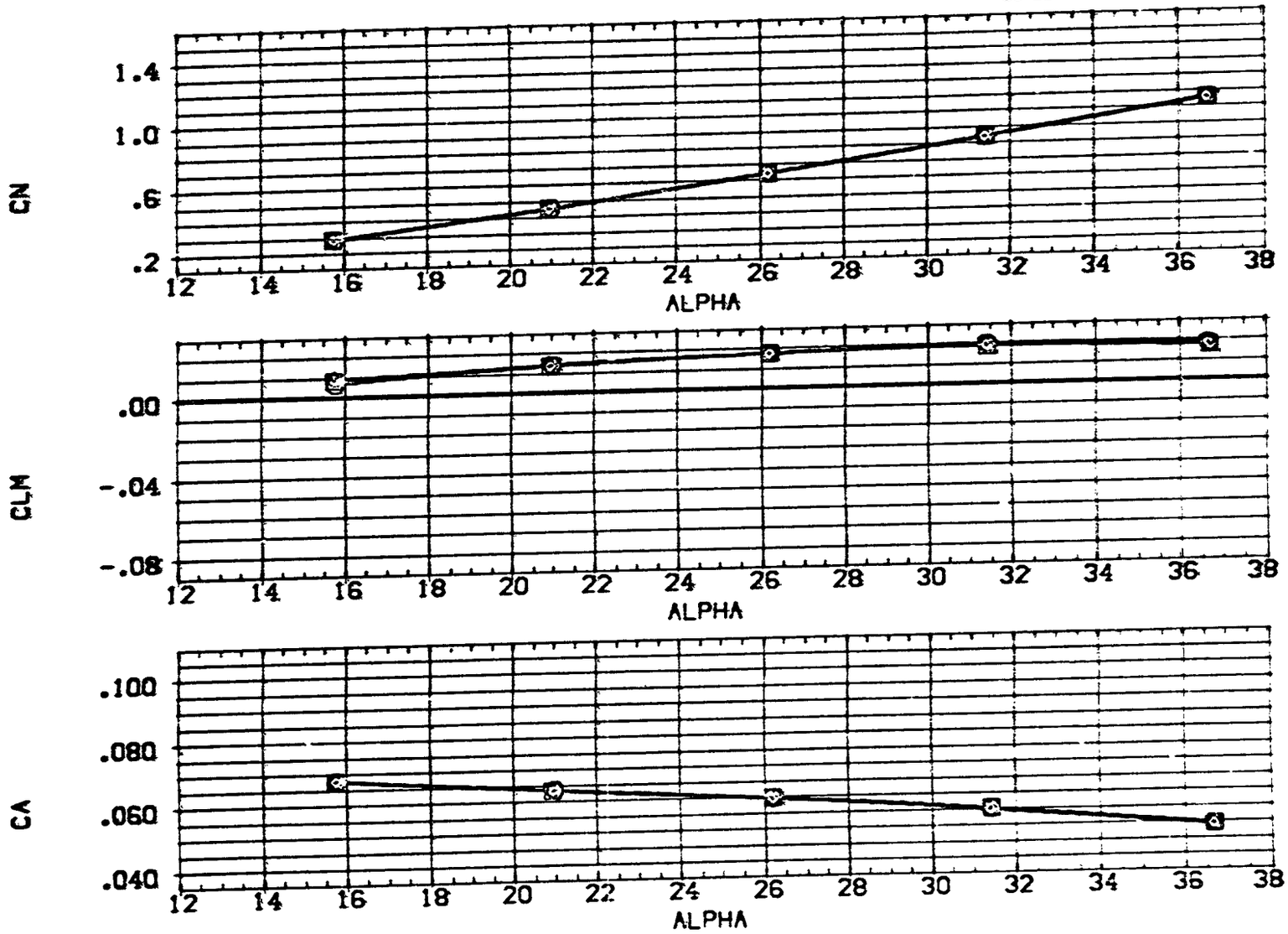
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=5, MACH=4.6)

OA-70. UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV015)

SYMBOL	PO-JET		PARAMETRIC VALUES		
○	.268	BETA	5.000	MACH	4.600
□	70.088	RHVL	1.720	ELEVTR	-20.000
◇	161.614	AILRON	.000	BDFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.0000	INCHES
SCALE	.0150	



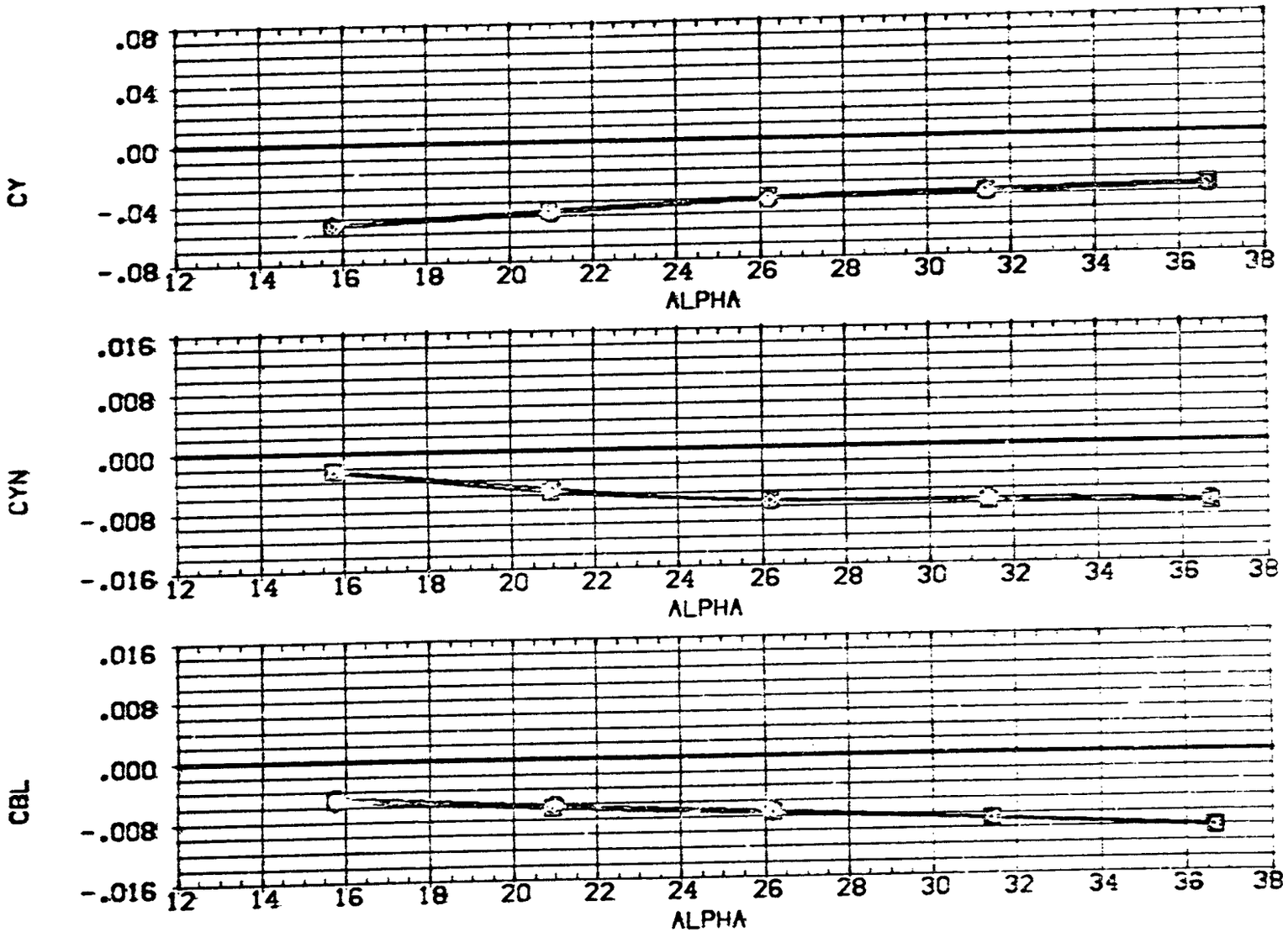
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=5, MACH=4.6)

OA-70. UPWT1043.ORB(B19C7F5MEN19)(W107E23)(V7R5)(RPV015)

SYMBOL	PO-JET		PARAMETRIC VALUES		
◇110	.268	BETA	5.000	MACH	4.600
	70.088	RVL	1.720	ELEVTR	-20.000
	161.614	AILRON	.000	BOFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0000	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.3000	INCHES
SCALE	.0150	



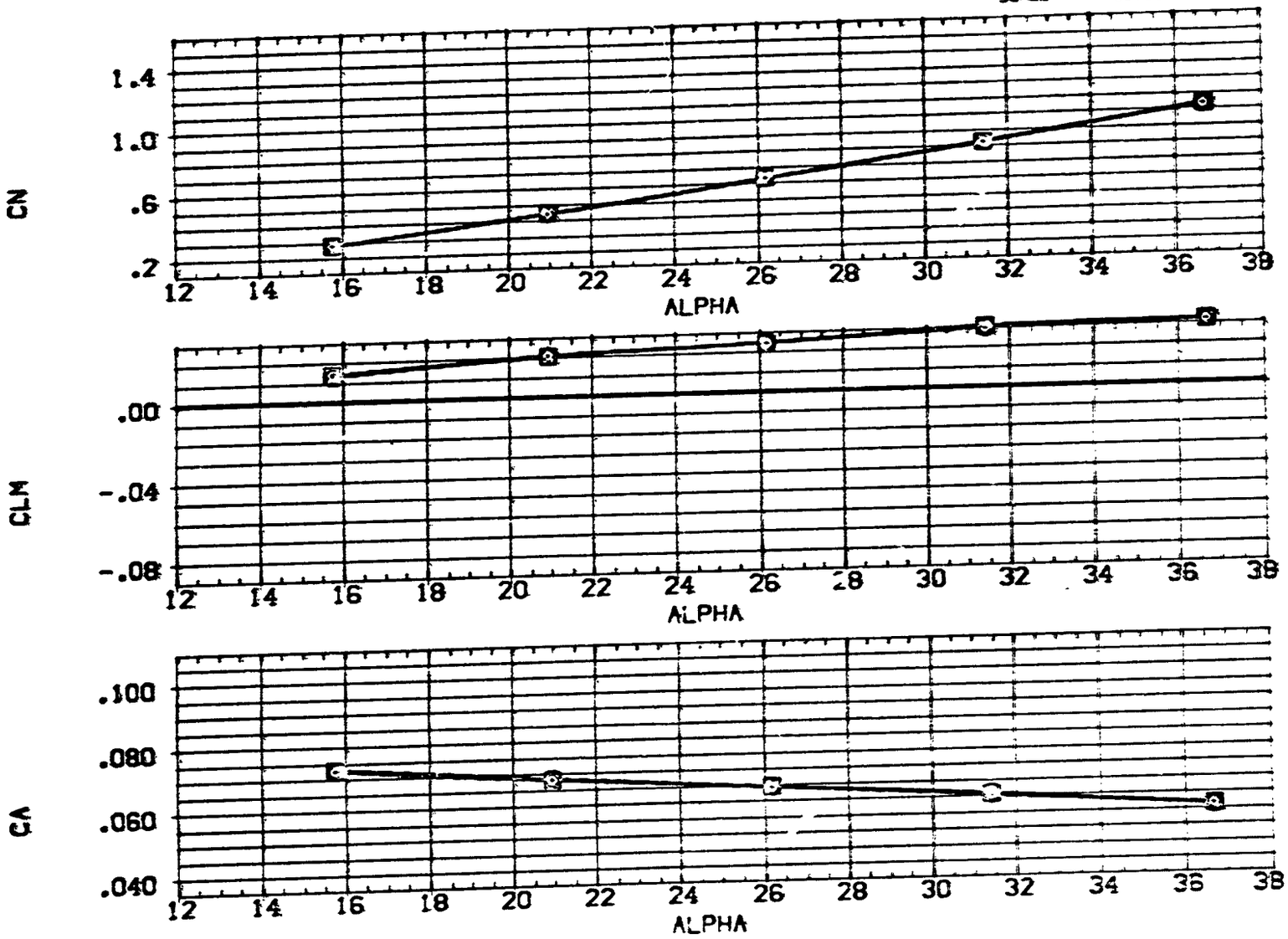
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=5, MACH=4.6)

OA-70, UPWT1043.ORB(B19C7F5M6N19)(W107E23)(V7R5)(RPV018)

SYMBOL	PB-JET		PARAMETRIC VALUES		
◇ CLO	.326	BETA	5.000	MACH	4.600
	69.471	PAVL	1.720	ELEVTR	-40.000
	163.010	AILRON	.000	BOFLAP	-14.250
		RUDFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	INCHES
BREF	14.0500	INCHES
XMRP	12.5800	INCHES
YMRP	.0000	INCHES
ZMRP	6.7000	INCHES
SCALE	.0150	



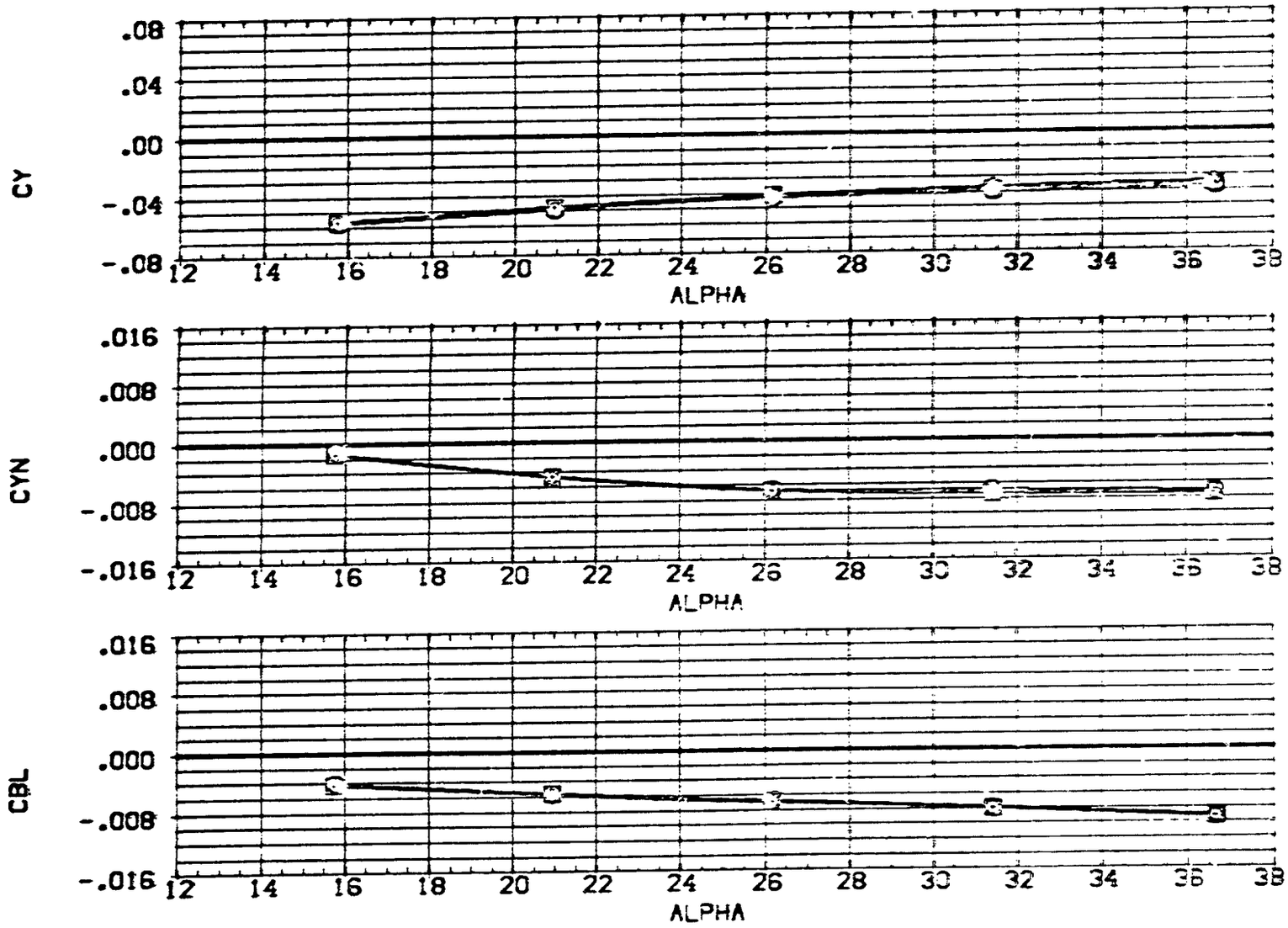
EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=5, MACH=4.6)

OA-70. UPWT1043.CRB(B19C7F5M6N19)(W107E23)(V7R5)(RPV018)

SYMBOL	PJ-JET	PARAMETRIC VALUES			
○	.326	BETA	5.000	MACH	4.600
□	69.471	RVL	1.720	ELEVTR	-40.000
◇	163.010	AILRON	.000	BOFLAP	-14.250
		PJOFLR	40.000	RUDDER	.000

REFERENCE INFORMATION

SREF	87.1560	SQ.IN.
LREF	7.1222	IN-ES
BREF	14.0560	IN-LS
XMRP	12.5000	IN-ES
YMRP	.0000	IN-LS
ZMRP	5.0000	IN-ES
SCALE	.0150	



EFFECT OF RCS ON ORBITER AERO. CHARACT. (BETA=5, MACH=4.6)

APPENDIX

TABULATED SOURCE DATA

Tabulations of the plotted data are available from DMS on request.

DATE 09 OCT 75 TABULATED SOURCE DATA, LARC UPWT 1043 (OA-75)

OA-75, UPWT1043,ORB(B19C7F5M6N19)(W107E23)(VTR5) (APV0001) (04 OCT 75)

REFERENCE DATA

SREF =	87.1560 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0133				

PARAMETRIC DATA

BETA =	-5.000	MACH =	2.500
RN/L =	1.729	ELEVTR =	.000
AILRON =	.000	BDFLAP =	.000
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 2/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
.318	15.506	373.53818	-.16867	-.16464	-.17284	-.13681	-.15139	-.18105	85.38016
.316	20.919	373.97348	-.16727	-.16388	-.17800	-.16490	-.15656	-.18111	85.47965
.092	26.415	373.61590	-.17383	-.16465	-.17540	-.17757	-.15903	-.17085	85.39771
.316	31.794	373.48697	-.16609	-.16719	-.17538	-.17755	-.14121	-.18104	85.36845
.092	37.296	373.48697	-.16609	-.16719	-.17285	-.17581	-.15138	-.17338	85.36845
	GRADIENT	-.01085	.00024	-.00009	.00005	-.00163	.00028	.00028	-.00248

RUN NO. 3/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
63.198	15.503	373.81984	-.17129	-.16724	-.17288	-.13688	-.16669	-.18874	85.44454
62.079	20.918	373.81984	-.17386	-.16724	-.17797	-.16488	-.16669	-.17598	85.44454
62.526	26.313	373.81984	-.17386	-.16468	-.17543	-.17505	-.15907	-.17598	85.44454
62.974	31.851	374.17833	-.16364	-.16474	-.17293	-.17511	-.15406	-.18368	85.52647
63.421	37.285	374.02469	-.16361	-.16728	-.17291	-.17254	-.16672	-.17856	85.49136
	GRADIENT	.01412	.00047	.00004	.00009	-.00149	.00023	.00023	.00323

RUN NO. 4/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
227.008	15.495	374.15272	-.17134	-.16730	-.17293	-.13696	-.16928	-.18877	85.52062
225.214	20.910	374.05039	-.17133	-.16728	-.17546	-.16491	-.16419	-.17547	85.49721
225.886	26.361	374.02469	-.16875	-.16472	-.17291	-.17508	-.15911	-.17091	85.49136
226.781	31.779	374.17833	-.16621	-.16474	-.16784	-.17002	-.16928	-.18623	85.52647
224.991	37.321	374.10151	-.16620	-.16729	-.17292	-.17255	-.17689	-.17857	85.50892
	GRADIENT	.00047	.00028	.00005	.00014	-.00140	-.00037	.00014	.00011

OA-75, UPWT1043,ORB(B19C7F5M6N19) (W107E23) (VTR5) (APV002) (04 OCT 73)

REFERENCE DATA

SREF = 87.1569 SQ.IN. XMRP = 12.5800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0550 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = .000 MACH = 2.500
RN/L = 1.720 ELEVTR = .000
AILRON = .000 BDFLAP = .000
RUDFLR = 40.000 RUDDER = .000

RUN NO. 5/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
.092	15.527	373.99909	-.17132	-.16215	-.17291	-.12675	-.14133	-.16111	85.48591
.092	20.895	373.41152	-.17107	-.16958	-.17267	-.16719	-.15626	-.16091	85.12263
.092	26.368	373.51257	-.17639	-.16976	-.16774	-.16737	-.15901	-.16360	85.37430
.092	31.784	374.86968	-.16889	-.16742	-.17050	-.16759	-.15926	-.17359	85.68450
.092	37.286	374.89529	-.16633	-.16742	-.17304	-.17521	-.15927	-.18122	86.69035
	GRADIENT	.07834	.00022	-.00015	.00003	-.00178	-.00071	.00019	.01791

RUN NO. 6/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
69.464	15.498	374.20393	-.17392	-.16987	-.17294	-.12681	-.16168	-.18623	85.53233
31.114	20.901	374.15272	-.17134	-.16986	-.17293	-.16493	-.15913	-.18113	85.52062
60.289	26.341	374.30636	-.17393	-.16988	-.16023	-.16242	-.16677	-.18370	85.55574
61.408	31.783	374.28075	-.16879	-.16732	-.16786	-.16750	-.16423	-.17095	85.54989
65.884	37.295	374.28075	-.16623	-.16732	-.17549	-.17258	-.16169	-.18114	85.54989
	GRADIENT	.00517	.00033	.00014	-.00000	-.00172	-.00009	.00037	.00118

RUN NO. 7/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
223.200	15.492	374.28075	-.17136	-.16988	-.17295	-.12683	-.16676	-.18624	85.54989
219.949	20.914	374.28075	-.16879	-.16732	-.17295	-.16241	-.16169	-.17605	85.54989
214.249	26.380	374.20393	-.16621	-.16475	-.15767	-.15986	-.16675	-.18368	85.53233
222.753	31.791	374.28075	-.16879	-.16732	-.17040	-.17004	-.15915	-.16841	85.54989
226.781	37.306	374.28075	-.16623	-.16732	-.17549	-.17512	-.16423	-.18114	85.54989
	GRADIENT	-.00000	.00019	.00009	-.00005	-.00191	.00014	.00033	-.00000

OA-75, UPWT1043,OFB (B19C7F5N6N19) (W107E29) (V7R5) (APV003) (26 OCT 78)

REFERENCE DATA

SREF = 87.1560 SQ.IN. XMRP = 12.5800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0590 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = 5.000 MACH = 2.500
RN/L = 1.720 ELEVTR = .000
AILRON = .000 BDFLAP = .000
RUDFLR = 40.000 RUDDER = .000

RUN NO. 8/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CP20	PINF
.092	15.488	374.28075	-.16623	-.16732	-.17295	-.15987	-.14951	-.17095	85.54989
.092	25.911	374.43439	-.17395	-.16990	-.17297	-.17260	-.16679	-.18371	85.58590
-.132	26.389	374.30638	-.17650	-.17244	-.16832	-.16750	-.16677	-.17860	85.55574
-.132	31.821	374.25514	-.17393	-.16987	-.17295	-.17257	-.16676	-.17359	85.54409
-.132	37.282	374.28079	-.17650	-.16732	-.17295	-.17258	-.16423	-.18624	85.54989
	GRADIENT	-.00330	-.00038	.00000	.00000	-.00047	-.00056	-.00037	-.00075

RUN NO. 9/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CP20	PINF
69.240	15.492	374.35757	-.16624	-.16733	-.17042	-.15988	-.12366	-.17864	85.56744
52.009	20.911	374.28075	-.17395	-.16988	-.17040	-.17004	-.15408	-.18624	85.54989
67.480	26.370	374.38317	-.17138	-.16989	-.16279	-.16751	-.16678	-.17861	85.57330
63.198	31.846	374.35757	-.17137	-.16733	-.17296	-.17005	-.16424	-.17606	85.56744
61.458	37.279	374.40878	-.17651	-.16734	-.17042	-.17260	-.16425	-.18880	85.57915
	GRADIENT	.00329	-.00033	.00005	-.00005	-.00047	-.00167	-.00019	.00075

RUN NO. 10/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CP20	PINF
223.649	15.480	374.33196	-.16623	-.16477	-.17041	-.15988	-.13380	-.17606	85.56159
218.725	20.888	374.30636	-.16623	-.16477	-.16278	-.16750	-.15409	-.17860	85.55574
225.886	26.366	374.35757	-.17134	-.16733	-.16833	-.16751	-.16931	-.18370	85.56744
229.467	31.802	374.33196	-.17394	-.16733	-.17296	-.17259	-.17185	-.17351	85.56159
224.544	37.288	374.33196	-.17650	-.16989	-.17296	-.17259	-.16931	-.19134	85.56159
	GRADIENT	.00047	-.00052	-.00023	-.00028	-.00056	-.00163	-.00047	.00011

REFERENCE DATA

SREF =	87.1569 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	-5.000	MACH =	2.500
RN/L =	1.720	ELEVTR =	-20.000
AILRON =	.000	BDFLAP =	-14.250
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 53/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CP20	PINF
.272	15.491	373.43576	-.17036	-.16894	-.17466	-.13359	-.15325	-.18541	85.35674
.272	20.877	373.56379	-.17295	-.17152	-.18233	-.16414	-.16090	-.17266	85.38601
.272	26.319	373.33333	-.17806	-.17405	-.18230	-.17684	-.16086	-.17263	85.33333
.049	31.774	373.92227	-.16529	-.17258	-.17728	-.17183	-.16097	-.18546	85.46795
.273	37.259	373.69142	-.16782	-.17154	-.16960	-.16925	-.15330	-.17778	85.41527
	GRADIENT	.01600	.00023	-.00010	.00028	-.00145	-.00000	.00004	.00266

RUN NO. 54/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CP20	PINF
64.051	15.468	373.74303	-.17298	-.17155	-.17725	-.13363	-.17364	-.19310	85.42698
65.618	20.862	374.05030	-.17302	-.17160	-.17984	-.16168	-.16861	-.17528	85.49721
63.157	26.325	374.71605	-.17568	-.17425	-.17993	-.17449	-.16618	-.17283	85.64938
64.723	31.727	371.95962	-.16754	-.17127	-.17731	-.17153	-.17582	-.18780	85.01728
57.562	37.236	373.64060	-.16782	-.16897	-.17214	-.16924	-.16854	-.17778	85.40357
	GRADIENT	-.04217	.00029	.00010	.00024	-.00149	.00015	.00033	-.00964

RUN NO. 55/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CP20	PINF
226.069	15.446	373.61500	-.17038	-.17153	-.17469	-.13359	-.17362	-.19819	85.39771
225.845	20.891	373.53818	-.16780	-.17152	-.17978	-.16159	-.16852	-.17776	85.39016
225.398	26.320	373.56379	-.17038	-.17152	-.17468	-.17178	-.16853	-.18032	85.39601
225.175	31.775	373.76803	-.16527	-.17155	-.17471	-.17181	-.17618	-.18800	85.45283
224.727	37.262	373.61500	-.16781	-.17153	-.17469	-.16924	-.18124	-.18032	85.39771
	GRADIENT	.00422	.00014	-.00000	.00009	-.00149	-.00042	.00047	.00097

DATE 09 OCT 73 TABULATED SOURCE DATA, LARC UPWT 1043 (OA-7D)

OA-7D, UPWT1043,ORB(B:9C7F5M6N19:W307E23) (V7R5) (APV30D) (04 OCT 73)

REFERENCE DATA

SREF =	87.1560 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	.000	MACH =	2.500
RN/L =	1.720	ELEVTR =	-20.000
AILRON =	.000	BDFLAP =	-14.250
RUDFLR =	40.000	RUDDEF =	.000

RUN NO. 56/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
.277	15.469	373.67106	-.16785	-.16645	-.17473	-.13111	-.14318	-.16760	85.45624
.277	20.894	373.81984	-.17042	-.16900	-.17472	-.16164	-.15841	-.17525	85.44454
.033	26.364	373.94787	-.17351	-.17158	-.17219	-.16168	-.12797	-.18347	85.47380
.033	31.784	374.12711	-.16790	-.16905	-.17222	-.16169	-.16101	-.17274	85.51477
.033	37.230	373.89666	-.16272	-.16845	-.17218	-.16420	-.16096	-.17016	85.46209
	GRADIENT	.00659	.00023	-.00000	.00014	-.00122	-.00070	-.00005	.00151

RUN NO. 57/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
62.711	15.481	373.15409	-.17031	-.16889	-.17207	-.13348	-.16337	-.17260	85.29238
62.712	20.983	374.05038	-.17043	-.16904	-.17475	-.16168	-.16353	-.17018	85.49721
62.488	26.393	374.10151	-.17046	-.16904	-.17221	-.15915	-.16861	-.18348	85.50892
63.383	31.743	373.51257	-.16780	-.16895	-.17212	-.16158	-.16344	-.17010	85.37430
63.159	37.243	373.69182	-.16525	-.16542	-.16950	-.16416	-.16347	-.17778	85.41527
	GRADIENT	.01009	.00024	.00009	.00014	-.00113	-.00000	-.00019	.00231

RUN NO. 58/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
226.743	15.458	373.89666	-.16786	-.16901	-.17218	-.13367	-.16604	-.17784	85.46209
226.742	20.905	374.30636	-.17049	-.16908	-.17224	-.16172	-.16357	-.17277	85.55574
226.294	26.336	374.10151	-.17046	-.16904	-.16967	-.15915	-.17623	-.18803	85.50892
226.071	31.779	373.46136	-.16779	-.16894	-.17467	-.16412	-.16597	-.17009	85.36260
223.622	37.221	373.41015	-.16521	-.16893	-.17211	-.16411	-.16596	-.18030	85.35089
	GRADIENT	-.03342	.00015	.00001	-.00021	-.00116	-.00004	-.00004	-.00764

OA-7D, UPWT1043,ORB(B19C7F5M6N19)(W107E23)(VTR5) (APV096) (04 OCT 73)

REFERENCE DATA

SREF =	47.1560 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	5.000	MACH =	2.590
RN/L =	1.720	ELEVTR =	-20.000
AILRON =	.000	BDFLAP =	-14.250
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 59/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

RO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CP20	PINF
.276	15.449	373.87106	-.17299	-.17413	-.17727	-.15656	-.15080	-.18291	85.45624
.276	20.868	373.87106	-.17042	-.17157	-.17727	-.16928	-.16350	-.18546	85.45624
.052	26.317	373.89666	-.17814	-.17413	-.17473	-.16928	-.17366	-.18801	85.46209
.052	31.772	373.89666	-.17957	-.17157	-.17982	-.16928	-.17212	-.17271	85.46209
.052	37.228	373.94787	-.18072	-.17414	-.18238	-.17436	-.17621	-.18802	85.47360
	GRADIENT	.00329	-.00038	-.00000	-.00023	-.00065	-.00107	.00005	.00079

RUN NO. 60/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

RO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CP20	PINF
63.159	15.452	374.02469	-.17302	-.17415	-.17729	-.15659	-.15053	-.18293	85.49136
67.187	20.878	373.97348	-.17301	-.17158	-.17474	-.16675	-.15336	-.19312	85.47965
61.368	26.349	373.87106	-.17299	-.17413	-.16963	-.16674	-.17112	-.18291	85.45624
60.697	31.778	373.97348	-.17558	-.17158	-.17729	-.16675	-.16859	-.17017	85.47965
62.711	37.222	373.97348	-.18072	-.17414	-.17983	-.17184	-.17113	-.18547	85.47965
	GRADIENT	-.00189	-.00033	.00000	-.00014	-.00056	-.00177	.00033	-.00043

RUN NO. 61/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

RO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CP20	PINF
228.534	15.454	374.05030	-.16788	-.17160	-.17221	-.15405	-.13561	-.17803	85.49721
227.862	20.895	374.07590	-.16789	-.16648	-.16457	-.16168	-.15846	-.17274	85.50306
226.296	26.309	374.10151	-.17560	-.17160	-.17221	-.16677	-.17623	-.18803	85.50892
224.282	31.803	374.12711	-.17817	-.17417	-.18494	-.17186	-.17369	-.17529	85.51477
226.072	37.214	374.25514	-.17819	-.17418	-.17987	-.17442	-.17371	-.18550	85.54403
	GRADIENT	.00847	-.00057	-.00024	-.00066	-.00094	-.00168	.00005	.00194

CA-79, UPWT1043,ORB(B19C7F5W6N19) (W10E23) (VTRS) (APV007) (04 OCT 73)

REFERENCE DATA

SREF =	87.1368 SQ.IN.	XMRP =	12.7800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0300 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0151				

PARAMETRIC DATA

BETA =	-5.000	MACH =	7.500
RN/L =	1.720	ELEVTR =	-61.000
AILRON =	.000	BDFLAP =	-11.250
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 22/ C RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
1.009	15.432	373.94787	-.16125	-.16234	-.16796	-.12198	-.07299	-.17871	85.47388
.784	20.872	373.51297	-.16889	-.16995	-.17808	-.11987	-.09051	-.16589	85.37439
.561	26.362	373.53818	-.17147	-.16995	-.18064	-.17773	-.10831	-.17866	85.39016
.785	31.733	373.66621	-.17863	-.17766	-.18320	-.17772	-.12108	-.18635	85.40942
.561	37.254	373.79424	-.16894	-.17255	-.18067	-.17519	-.10585	-.16594	85.43868
	GRADIENT		-.05281	-.00042	-.00052	-.00058	-.00229	-.00177	.00009	-.00064

RUN NO. 23/ C RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
67.695	15.477	373.99909	-.16383	-.16491	-.16797	-.12161	-.12623	-.18127	85.48551
63.891	20.871	374.12711	-.17156	-.17004	-.17817	-.15999	-.15672	-.17109	85.51477
63.891	26.335	374.15272	-.17156	-.17005	-.18072	-.17525	-.12373	-.18129	85.52062
63.667	31.758	374.22954	-.17414	-.17773	-.18073	-.17526	-.16942	-.18640	85.53818
63.891	37.264	374.25514	-.16901	-.17262	-.17818	-.17526	-.15674	-.16856	85.54493
	GRADIENT		.01127	-.00024	-.00042	-.00042	-.00224	-.00135	.00019	.00258

RUN NO. 24/ C RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
225.683	15.481	374.58802	-.16658	-.16756	-.16806	-.12198	-.14413	-.18898	85.62012
225.683	20.857	374.17833	-.16900	-.17005	-.17563	-.16000	-.17195	-.17875	85.52647
227.253	26.298	372.74440	-.16877	-.17240	-.17543	-.17504	-.16664	-.17344	85.19872
226.802	31.732	373.43576	-.17660	-.18119	-.18062	-.17514	-.17184	-.18896	85.35674
224.118	37.252	373.69182	-.16892	-.17510	-.18066	-.17518	-.17696	-.17358	85.41527
	GRADIENT		-.04639	-.00023	-.00046	-.00055	-.00223	-.00120	.00038	-.01060

OA-7D, UPWT1043,ORB(B19C7F5M6N19)(W10TE25)(V7R5) (APV008) (04 OCT 73)

REFERENCE DATA

SREF = 87.1360 SQ.IN. XMRP = 12.3800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0300 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = .000 MACH = 2.500
RN/L = 1.720 ELEVTR = -40.000
AILRON = .000 BDFLAP = -14.250
RUDFLR = 40.000 RUDDER = .000

RUN NO. 28/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
.337	15.494	374.02469	-.16127	-.16491	-.16797	-.12945	-.08398	-.16893	85.49136
.336	20.821	374.02469	-.17154	-.17003	-.17306	-.16505	-.14401	-.17363	85.49136
.336	26.297	373.97348	-.17668	-.17514	-.17305	-.16505	-.14653	-.18127	85.47965
.336	31.788	374.02469	-.17668	-.17515	-.18325	-.17268	-.15416	-.17872	85.49136
.112	37.212	373.99909	-.16897	-.17258	-.18070	-.17014	-.15669	-.17872	85.48531
	GRADIENT		-.00094	-.00038	-.00038	-.00066	-.00163	-.00288	-.00047	-.00021

RUN NO. 29/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
64.337	15.441	373.76863	-.16379	-.16487	-.16793	-.12938	-.13887	-.16593	85.43283
62.771	20.892	374.02469	-.17154	-.17003	-.17306	-.16251	-.16177	-.17618	85.49136
63.442	26.277	373.76863	-.17408	-.17511	-.17048	-.16247	-.17189	-.18379	85.43283
63.690	31.787	373.56379	-.17662	-.17508	-.18574	-.17516	-.14390	-.16845	85.38601
64.114	37.198	373.71742	-.16893	-.17254	-.17811	-.17009	-.15664	-.18124	85.42112
	GRADIENT		-.01036	-.00028	-.00037	-.00061	-.00173	-.00032	-.00042	-.00237

RUN NO. 30/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
226.593	15.489	373.81934	-.16380	-.16488	-.16794	-.12939	-.15920	-.16849	85.44454
227.474	20.841	373.81934	-.16637	-.16744	-.16794	-.15993	-.16428	-.17615	85.44454
225.012	26.368	373.97348	-.17668	-.17514	-.17051	-.16505	-.17446	-.18382	85.47965
225.460	31.749	373.84545	-.17666	-.17768	-.18322	-.17775	-.16428	-.16085	85.45039
227.697	37.177	373.87106	-.16895	-.17500	-.17813	-.17012	-.16175	-.18126	85.45524
	GRADIENT		.00238	-.00038	-.00038	-.00066	-.00183	-.00010	-.00019	.00054

OA-7D, UPWT1043,ORB(B19C7F5M6N19),(W107E23),(V7R1) (APV009) (04 OCT 73)

REFERENCE DATA

SREF = 87.1360 SQ.IN. XMRP = 12.3600 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.5500 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = 5.000 MACH = 2.500
RN/L = 1.720 ELEVTR = -45.000
AILRON = .000 BDFLAP = -14.250
RUDFLR = 40.000 RUDDER = .000

RUN NO. 25/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
.562	15.481	373.71742	-.17150	-.16742	-.17558	-.15737	-.12615	-.17109	85.42182
.338	25.849	373.79424	-.17408	-.16999	-.17558	-.17019	-.14395	-.17669	85.43588
.338	26.283	373.76863	-.17665	-.17767	-.17812	-.16756	-.15919	-.17359	85.43283
.115	31.732	373.81984	-.17922	-.17768	-.18832	-.16502	-.15412	-.18638	85.44454
.114	37.268	373.76863	-.17408	-.17511	-.18831	-.16501	-.16681	-.17359	85.43283
	GRADIENT	.00233	-.00019	-.00042	-.00079	-.00019	-.00168	-.00025	.00053

RUN NO. 26/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
63.892	15.423	373.81984	-.17151	-.16744	-.17393	-.15738	-.11858	-.16849	85.44454
63.893	25.890	373.89666	-.17152	-.17001	-.17050	-.16503	-.13636	-.16636	85.46299
63.667	26.292	373.71742	-.17407	-.17510	-.17811	-.16755	-.16426	-.17868	85.42112
63.221	31.763	373.79424	-.17665	-.17768	-.18831	-.16247	-.17189	-.18380	85.43868
63.892	37.249	373.76863	-.17665	-.17511	-.18831	-.16501	-.16681	-.17359	85.43283
	GRADIENT	-.06374	-.00028	-.00042	-.00089	-.00025	-.00242	-.00014	-.00086

RUN NO. 27/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
227.027	15.458	373.97348	-.16897	-.16490	-.17305	-.15741	-.12622	-.15342	85.47965
224.789	25.855	373.92227	-.17153	-.17001	-.16541	-.16249	-.15922	-.18381	85.46795
226.579	26.313	373.92227	-.17667	-.17513	-.18069	-.16758	-.17191	-.18381	85.46795
226.579	31.730	373.99309	-.18182	-.18026	-.18833	-.16505	-.17954	-.17617	85.48551
225.237	37.215	374.05030	-.17669	-.17771	-.18974	-.16252	-.17195	-.17618	85.49721
	GRADIENT	.00424	-.00047	-.00066	-.00098	-.00023	-.00205	-.00033	.00097

REFERENCE DATA

SREF =	87.1360 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	-5.000	MACH =	4.690
RN/L =	1.720	ELEVTR =	.000
AILRON =	.000	RDFLAP =	.000
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 11/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CF17	CF19	CF20	FINF
.315	15.839	202.48810	-.02870	-.02097	-.04984	-.03498	-.01472	-.06992	13.67054
.315	20.985	202.42028	-.03344	-.02096	-.04983	-.03497	-.01470	-.06511	13.66397
.315	26.212	202.46555	-.03344	-.02097	-.05454	-.03497	-.01940	-.06982	13.66972
.315	31.460	202.44741	-.02869	-.02096	-.05454	-.03497	-.01940	-.06998	13.66780
.315	36.708	202.49262	-.03345	-.02570	-.05454	-.03498	-.02410	-.06998	13.67385
	GRADIENT	.00070	-.00009	-.00018	-.00027	-.00000	-.00045	.00099	.00005

RUN NO. 12/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CF17	CF19	CF20	FINF
70.359	15.827	202.51975	-.03345	-.02571	-.04984	-.03498	-.02879	-.06511	13.67268
69.463	26.188	202.47906	-.03345	-.02570	-.04984	-.03498	-.03347	-.06511	13.66993
70.358	31.412	202.47454	-.03345	-.02570	-.05454	-.03498	-.03347	-.06511	13.66983
70.582	36.729	202.46550	-.03344	-.02573	-.05454	-.03497	-.03347	-.06511	13.66962
	GRADIENT	-.00259	.00000	.00000	-.00026	.00000	-.00025	.00000	-.00017

RUN NO. 13/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CF17	CF19	CF20	FINF
162.556	15.738	202.50619	-.03345	-.02570	-.05454	-.03968	-.03348	-.06511	13.67137
163.699	20.951	202.48910	-.03345	-.02570	-.05454	-.03969	-.03347	-.06511	13.67054
163.676	26.206	202.51975	-.03345	-.02571	-.05454	-.03968	-.03917	-.06511	13.67258
163.229	31.456	202.51071	-.03345	-.02571	-.05454	-.03968	-.03917	-.06511	13.67207
162.781	36.694	202.51975	-.03345	-.02571	-.04984	-.03968	-.03917	-.06511	13.67268
	GRADIENT	.00095	.00000	-.00000	.00018	-.00000	-.00027	-.00000	.00006

OA-7D, UPWT1043,OFB(B19C7F5M6N19; (W107E23) (V7R5) (AP#211) (04 OCT 73)

REFERENCE DATA

SREF = 87.1565 SQ.IN. XMRP = 12.5800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0300 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = .000 MACH = 4.600
RN/L = 1.720 ELEVTR = .000
AILRON = .000 RUDFLP = .000
RUDFLR = 40.000 FLCSEP = .000

RUN NO. 14/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CPZD	PINF
.317	19.745	202.54236	-.03820	-.02571	-.04984	-.03968	-.03348	-.06369	13.67421
317	20.960	202.52880	-.03820	-.02571	-.04984	-.03968	-.03348	-.06311	13.67329
.094	26.219	202.48810	-.03345	-.02575	-.04984	-.03968	-.03347	-.06311	13.67034
.094	31.461	202.55592	-.03820	-.02572	-.04984	-.03969	-.03348	-.06040	13.67312
.317	36.740	202.49715	-.03345	-.02579	-.04984	-.03499	-.03347	-.06099	13.67115
	GRADIENT	-.05121	.00018	.00000	.00000	.00018	.00000	.00027	-.00008

RUN NO. 15/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CPZD	PINF
70.137	15.737	202.51071	-.03345	-.02571	-.04984	-.03498	-.03817	-.06511	13.67207
71.481	20.964	202.48810	-.03345	-.02570	-.04984	-.03498	-.03816	-.06511	13.67034
72.598	26.186	202.48358	-.03345	-.02573	-.04984	-.03498	-.03816	-.06511	13.67024
64.766	31.447	202.48810	-.03819	-.02573	-.04984	-.03968	-.03816	-.06511	13.67034
65.214	36.707	202.54236	-.03820	-.02571	-.04984	-.03968	-.03817	-.06511	13.67421
	GRADIENT	.00121	-.00027	-.00000	.00000	-.00027	-.00000	.00000	.00008

RUN NO. 16/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CPZD	PINF
161.887	15.756	202.54638	-.03346	-.02571	-.04984	-.03968	-.03817	-.06511	13.67451
163.453	20.961	202.40220	-.03343	-.02568	-.04983	-.03966	-.04284	-.06511	13.66474
164.572	26.190	202.56045	-.03346	-.02572	-.04984	-.03969	-.04286	-.06511	13.67543
164.572	31.425	202.51071	-.03820	-.02571	-.04984	-.03968	-.04285	-.06511	13.67207
164.796	36.744	202.56497	-.03346	-.02099	-.04984	-.03969	-.03817	-.06099	13.67573
	GRADIENT	.00277	-.00009	.00018	-.00000	-.00000	.00000	.00054	.00019

RUN NO. 17/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CP17	CP19	CPZD	PINF
397.752	15.765	202.53332	-.03346	-.02571	-.04984	-.03968	-.03817	-.06511	13.67360
413.416	20.961	202.46550	-.03344	-.02570	-.04984	-.03967	-.03816	-.06511	13.66972
420.577	26.199	202.53332	-.03346	-.02571	-.04984	-.03968	-.04286	-.06511	13.67360
440.046	31.398	202.54236	-.03346	-.02571	-.04984	-.03968	-.03817	-.06511	13.67421
446.983	36.758	202.52427	-.03820	-.02571	-.05454	-.03968	-.04286	-.06511	13.67299
	GRADIENT	.00112	-.00018	-.00000	-.00018	-.00000	-.00018	.00000	.00019

REFERENCE DATA

SREF = 67.1563 SQ.IN. XMRP = 12.5800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0000 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = 5.000 MACH = 4.670
RN/L = 1.720 ELEVTR = .000
AILRON = .000 BDFLAP = .000
RUDFLP = 40.000 RUDDER = .000

RUN NO. 18/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CF17	CF19	CF23	PINF
.317	15.774	202.52880	-.03345	-.02571	-.04984	-.03968	-.03817	-.06511	13.67329
.317	20.948	202.47454	-.03819	-.02570	-.04984	-.03967	-.03816	-.06511	13.66983
.317	26.229	202.51523	-.03820	-.02571	-.04984	-.03968	-.04285	-.06511	13.67228
.094	31.455	202.50619	-.03820	-.02570	-.05454	-.03968	-.03816	-.06511	13.67177
.094	36.800	202.51523	-.03345	-.02571	-.04984	-.03968	-.03817	-.06511	13.67228
	GRADIENT	.00010	.00000	-.00001	-.00009	-.00000	.00000	.00000	.00001

RUN NO. 19/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CF17	CF19	CF23	PINF
58.277	15.724	202.54236	-.03820	-.02571	-.04984	-.03968	-.03817	-.06511	13.67421
60.515	20.950	202.51523	-.03820	-.02571	-.05454	-.03968	-.03817	-.06511	13.67228
63.424	26.183	202.37055	-.03818	-.02568	-.05453	-.03966	-.04284	-.06511	13.66261
66.333	31.442	202.56949	-.03821	-.02572	-.05455	-.03969	-.03817	-.06511	13.67604
67.900	36.686	202.56045	-.03820	-.02572	-.04934	-.03969	-.03817	-.06511	13.67543
	GRADIENT	.00174	-.00000	-.00000	.00000	-.00000	.00000	.00000	.00012

RUN NO. 20/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CF17	CF19	CF23	PINF
163.231	15.734	202.50167	-.03820	-.03043	-.05454	-.03968	-.04285	-.06511	13.67148
162.113	20.980	202.53332	-.03820	-.03044	-.04984	-.03968	-.04286	-.06511	13.67350
164.350	26.183	202.49715	-.03820	-.03043	-.04984	-.03968	-.04754	-.06511	13.67115
166.588	31.428	202.47906	-.03819	-.02570	-.05924	-.03967	-.04285	-.06511	13.66993
167.483	36.664	202.49715	-.03820	-.02570	-.05454	-.03968	-.04285	-.06511	13.67115
	GRADIENT	-.00121	.00000	.00027	-.00018	.00000	.00000	-.00000	-.00008

OA-73, UPWT1043,ORB(B19C7F5M6N19)(W107E23)(V7R5) (APV313) (04 OCT 73)

REFERENCE DATA

SREF =	67.1560 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	-5.000	MACH =	4.600
RN/L =	1.720	ELEVTR =	-20.000
AILRON =	.000	BDFLAP =	-14.250
PUDFLR =	40.000	RUDDER =	.000

RUN NO. 44/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CF17	CF19	CF20	FINF
.042	15.792	202.49262	-.04083	-.04263	-.05744	-.03790	-.03176	-.07268	13.67085
-.182	20.964	202.45193	-.04083	-.04263	-.05744	-.03790	-.03176	-.07268	13.66810
-.181	26.201	202.45193	-.04083	-.04263	-.05744	-.03790	-.03176	-.07268	13.66810
.042	31.426	202.50167	-.04083	-.04263	-.05744	-.03791	-.03177	-.07268	13.67145
.042	36.685	202.44741	-.04083	-.04263	-.05744	-.03790	-.03176	-.07268	13.66780
	GRADIENT	-.00078	-.00000	.00001	-.00000	-.00000	-.00000	.00000	-.00005

RUN NO. 45/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CF17	CF19	CF20	FINF
69.414	15.743	202.46550	-.04083	-.04263	-.05744	-.03790	-.04114	-.07268	13.66902
71.652	20.957	202.46097	-.04557	-.04263	-.06214	-.03790	-.04114	-.07268	13.66871
72.995	26.212	202.47002	-.04083	-.04736	-.05744	-.04260	-.04114	-.07268	13.66932
69.862	31.469	202.46550	-.04083	-.04736	-.05744	-.04260	-.04114	-.07268	13.66902
68.967	36.732	202.47002	-.04083	-.04736	-.05744	-.04260	-.04114	-.07268	13.66932
	GRADIENT	.00026	.00009	-.00027	.00009	-.00027	-.00000	.00000	.00002

RUN NO. 46/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CFB	CFSC	CFBM	CF17	CF19	CF20	FINF
163.401	15.730	202.49262	-.04558	-.04263	-.06214	-.04260	-.04114	-.07268	13.67085
164.968	20.957	202.48358	-.04083	-.04736	-.06214	-.04260	-.04114	-.07268	13.67024
164.744	26.178	202.50167	-.04083	-.04736	-.05744	-.04260	-.04114	-.07268	13.67145
164.072	31.455	202.51071	-.04083	-.04736	-.05274	-.04260	-.04114	-.07268	13.67207
162.954	36.702	202.50167	-.04083	-.04263	-.05274	-.04260	-.04114	-.07268	13.67145
	GRADIENT	.00085	.00018	.00000	.00054	-.00000	-.00000	.00000	.00005

OA-7D, UPWT1043,ORB(B19C7F5M6N19:(M107E29)(V7R5) (APV314) (04 OCT 73)

REFERENCE DATA

SREF =	87.1160 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0159				

PARAMETRIC DATA

BETA =	.000	MACH =	4.630
RN/L =	1.720	ELEVTR =	-20.000
AILRON =	.000	BDFLAP =	-14.250
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 47/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
.042	15.760	202.49715	-.04558	-.04736	-.06214	-.04260	-.04114	-.07268	13.67115
.042	20.944	202.50619	-.04558	-.04736	-.05744	-.04260	-.04114	-.07268	13.67177
.042	26.188	202.50167	-.04558	-.04736	-.05744	-.04260	-.04114	-.07268	13.67146
.042	31.423	202.51975	-.04084	-.04264	-.05274	-.04261	-.04115	-.07268	13.67268
.042	36.679	202.51071	-.04083	-.04263	-.05744	-.04260	-.04583	-.07268	13.67207
	GRADIENT	.00078	.00027	.00027	.00027	-.00000	-.00018	.00000	.00005

RUN NO. 48/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
66.281	15.759	202.51523	-.04083	-.04263	-.05744	-.04260	-.04583	-.07268	13.67238
69.661	20.954	202.53784	-.04084	-.04264	-.05744	-.04261	-.04584	-.07267	13.67390
66.504	26.199	202.53784	-.04558	-.04264	-.05744	-.04261	-.04584	-.07267	13.67390
68.969	31.445	202.50167	-.04558	-.04263	-.05744	-.04260	-.04114	-.07268	13.67146
70.932	36.690	202.50167	-.04083	-.04263	-.05744	-.04260	-.04583	-.07268	13.67146
	GRADIENT	-.00121	-.00009	.00000	.00000	.00000	.00009	-.00000	-.00008

RUN NO. 49/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
163.851	15.759	202.52427	-.04558	-.04264	-.05744	-.04261	-.04583	-.07268	13.67299
164.746	20.984	202.52427	-.04084	-.04736	-.05744	-.04261	-.04583	-.07268	13.67299
164.299	26.166	202.50167	-.04558	-.04736	-.05744	-.04260	-.04583	-.07268	13.67145
164.075	31.420	202.54688	-.04084	-.04264	-.05744	-.04261	-.04584	-.07267	13.67451
163.528	36.690	202.49262	-.04083	-.04263	-.05744	-.04260	-.04583	-.07268	13.67085
	GRADIENT	-.00078	.00018	.00009	-.00000	.00000	-.00000	.00000	-.00005

OA-79, UPWT1043,OFB(B19C7F5M6N19) (M10FE23) (V7R9) (APV315) (04 OCT 73)

REFERENCE DATA

SREF =	87.1360 SQ.IN.	XMRP =	12.5850 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0590 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	5.000	MACH =	4.600
RN/L =	1.725	ELEVTR =	-20.000
AILRON =	.000	BDFLAP =	-14.250
RUDDLR =	40.000	RUDDER =	.000

RUN NO. 50/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
.268	19.765	202.51523	-.04583	-.04263	-.05744	-.04260	-.04115	-.07268	13.67238
.044	20.983	202.50619	-.04558	-.04263	-.05744	-.04260	-.04114	-.07268	13.67177
.044	26.182	202.53332	-.04558	-.04264	-.06214	-.04261	-.04115	-.07267	13.67360
.044	31.438	202.51523	-.04558	-.04263	-.05744	-.04260	-.04115	-.07268	13.67238
.044	36.688	202.51975	-.04558	-.04264	-.05274	-.04261	-.04115	-.07268	13.67268
	GRADIENT	.00039	-.00018	-.00000	.00018	-.00000	-.00001	-.00000	.00002

RUN NO. 51/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
70.088	15.744	202.53784	-.04558	-.04264	-.06214	-.04261	-.04584	-.07267	13.67399
72.192	20.948	202.52427	-.04558	-.04264	-.06214	-.04261	-.04583	-.07268	13.67299
66.732	26.204	202.52427	-.05053	-.04264	-.06214	-.04261	-.04583	-.07268	13.67299
68.969	31.437	202.56497	-.04559	-.04264	-.06214	-.04261	-.04584	-.07267	13.67573
70.983	36.681	202.56949	-.04559	-.04264	-.06214	-.04261	-.04584	-.07267	13.67604
	GRADIENT	.00199	-.00000	-.00000	-.00000	-.00000	-.00000	.00000	.00013

RUN NO. 52/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
161.614	15.736	202.52427	-.04558	-.04736	-.05744	-.04261	-.04583	-.07268	13.67299
164.076	20.948	202.53784	-.04558	-.04264	-.06214	-.04261	-.05052	-.07267	13.67390
162.286	26.182	202.53784	-.04558	-.04264	-.05744	-.04261	-.05052	-.07267	13.67390
169.496	31.491	202.55140	-.04558	-.04264	-.05744	-.04261	-.04584	-.07267	13.67482
162.286	36.669	202.58757	-.04559	-.04264	-.06214	-.04261	-.04584	-.07267	13.67726
	GRADIENT	.00268	-.00000	.00018	-.00009	-.00000	.00009	.00000	.00018

OA-7D, UPWT1043,ORB(B19C7F5M6N19)(W107E23)(V7R5) (APV016) (04 OCT 73)

REFERENCE DATA

SREF = 87.1561 SQ.IN. XMRP = 12.5800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0999 INCHES ZMRP = 6.0000 INCHES
SCALE = .0155

PARAMETRIC DATA

BETA = -5.000 MACH = 4.699
R/L = 1.720 ELEVTR = -40.000
AILRON = .000 BDFLAP = -14.250
RUDFLR = 40.000 RUDDER = .000

RUN NO. 31/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
.112	15.766	202.45193	-.03810	-.03501	-.05432	-.03474	-.00976	-.06020	13.66810
.112	20.961	202.46330	-.03811	-.03501	-.05432	-.03944	-.02384	-.06492	13.66902
.112	26.207	202.42028	-.03810	-.03501	-.04962	-.03944	-.02383	-.06491	13.66597
.112	31.430	202.42480	-.03335	-.03974	-.05432	-.03944	-.02383	-.06491	13.66627
.112	36.675	202.47002	-.03336	-.03974	-.05433	-.03945	-.02855	-.03666	13.66932
	GRADIENT	-.00009	.00027	-.00027	-.00000	-.00018	-.00072	.00090	-.00001

RUN NO. 32/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
71.943	15.724	202.37055	-.03809	-.03973	-.05432	-.03943	-.02851	-.06491	13.66261
72.376	20.992	202.39767	-.03810	-.03973	-.05432	-.03944	-.03789	-.06491	13.66444
72.614	26.182	202.37959	-.04284	-.03973	-.04961	-.03943	-.03789	-.06491	13.66322
72.166	31.392	202.37959	-.03809	-.03973	-.04961	-.03943	-.03789	-.04607	13.66322
71.495	36.674	202.42028	-.03810	-.03974	-.04962	-.03944	-.03321	-.04607	13.66597
	GRADIENT	.00156	-.00000	-.00000	.00027	-.00000	-.00018	.00108	.00011

RUN NO. 33/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
165.035	15.756	202.39767	-.04284	-.03973	-.05432	-.03944	-.03789	-.06020	13.66444
164.587	20.931	202.37055	-.04284	-.03973	-.05432	-.03943	-.03789	-.06491	13.66261
164.363	26.172	202.40220	-.04285	-.03973	-.05432	-.03944	-.03789	-.06491	13.66474
163.915	31.426	202.37507	-.03809	-.03973	-.05432	-.03943	-.03789	-.05078	13.66291
163.468	36.674	202.39315	-.03810	-.03973	-.04962	-.03943	-.03789	-.03665	13.66413
	GRADIENT	-.00009	.00027	.00000	.00018	.00000	-.00000	.00117	-.00001

OA-79, UPWT1043,ORB(B19C7F5M6N19) (W107E23) (V7R5) (APV317) (04 OCT 73)

REFERENCE DATA

SREF =	87.1360 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	.000	MACH =	4.630
RN/L =	1.720	ELEVTR =	-40.000
AILRON =	.000	BDFLAP =	-14.250
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 34/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
-.117	19.751	202.38411	-.04284	-.03973	-.05432	-.03943	-.03320	-.06491	13.66352
.107	23.959	202.44289	-.03810	-.03974	-.05432	-.03944	-.03790	-.06491	13.66749
.106	26.196	202.37059	-.03809	-.03973	-.05432	-.03943	-.03789	-.06491	13.66284
.106	31.441	202.38863	-.03810	-.03973	-.05432	-.03943	-.03789	-.05078	13.66383
-.118	36.677	202.42932	-.03810	-.03974	-.05432	-.03944	-.03790	-.05078	13.66658
	GRADIENT	.00069	.00018	-.00000	.00000	-.00000	-.00018	.00081	.00005

RUN NO. 35/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
71.938	19.729	202.46097	-.03811	-.03974	-.05432	-.03944	-.03790	-.06491	13.66871
70.371	23.959	202.41576	-.03810	-.03973	-.05432	-.03944	-.03790	-.06491	13.66566
69.924	26.181	202.41124	-.03810	-.03973	-.05903	-.03944	-.03790	-.05549	13.66535
69.924	31.393	202.42028	-.03810	-.03974	-.05432	-.03944	-.03790	-.05549	13.66597
69.924	36.659	202.45645	-.03811	-.03974	-.05432	-.03944	-.03790	-.06020	13.66841
	GRADIENT	-.00008	-.00000	-.00000	.00000	-.00000	.00000	.00036	-.00001

RUN NO. 36/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
165.029	15.751	202.39315	-.04284	-.03973	-.05432	-.03943	-.04728	-.06020	13.66413
164.358	20.930	202.42932	-.04289	-.03974	-.05432	-.03944	-.04728	-.06491	13.66658
163.686	26.161	202.40220	-.04285	-.03973	-.05432	-.03944	-.04728	-.06491	13.66474
163.462	31.428	202.44289	-.04285	-.03974	-.05432	-.03944	-.04259	-.04607	13.66749
163.015	36.674	202.43837	-.03810	-.03501	-.05432	-.03944	-.04259	-.06020	13.66719
	GRADIENT	.00199	.00018	.00018	.00000	-.00000	.00027	.00036	.00013

OA-79, UPWT1043,ORB(B19C7F5M6N19)(W107E23)(V7R5) (APV018) (04 OCT 79)

REFERENCE DATA

SREF =	87.1969 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0300 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	5.000	MACH =	4.600
RN/L =	1.720	ELEVTR =	-40.000
AILRON =	.000	BDFLAP =	-14.250
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 37/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
.326	15.749	202.42488	-.03810	-.03974	-.05432	-.03944	-.04728	-.06491	13.66627
.102	20.946	202.40220	-.04285	-.03973	-.05432	-.03944	-.04728	-.06963	13.66474
.326	26.168	202.43837	-.04285	-.03974	-.05903	-.03944	-.04728	-.06491	13.66719
.101	31.433	202.37959	-.04284	-.03973	-.05432	-.03943	-.04727	-.05549	13.66322
.101	36.686	202.39767	-.03810	-.03973	-.05432	-.03944	-.04728	-.05549	13.66444
	GRADIENT	-.00147	.00000	.00000	.00000	.00000	.00000	.00063	-.00010

RUN NO. 39/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
69.471	15.722	202.43837	-.03810	-.03974	-.05432	-.03944	-.04728	-.06963	13.66719
70.142	20.946	202.44741	-.03810	-.03974	-.05903	-.03944	-.04259	-.06963	13.66780
69.919	26.177	202.45193	-.03810	-.03974	-.05903	-.03944	-.04728	-.06962	13.66810
69.695	31.419	202.41576	-.03810	-.03973	-.05903	-.03944	-.04728	-.06963	13.66566
69.695	36.686	202.42480	-.03810	-.03974	-.05903	-.03944	-.04259	-.05078	13.66627
	GRADIENT	-.00112	-.00000	.00000	-.00018	-.00008	.00009	.00072	-.00008

RUN NO. 40/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	Q(PSF)	CPB	CPSC	CPBM	CP17	CP19	CP20	PINF
163.010	15.741	202.44741	-.04285	-.03974	-.05432	-.03944	-.04728	-.06491	13.66780
163.458	20.943	202.40229	-.03810	-.03973	-.05432	-.04414	-.04728	-.06020	13.66474
163.906	26.188	202.41124	-.03810	-.03973	-.05432	-.03944	-.04728	-.05549	13.66535
164.352	31.429	202.40220	-.03810	-.03500	-.05432	-.03944	-.04728	-.05078	13.66474
164.576	36.650	202.42028	-.03810	-.03974	-.05432	-.03944	-.04728	-.06491	13.66597
	GRADIENT	-.00104	.00018	.00009	.00000	.00009	-.00000	.00018	-.00007

OA-75, UPWT1043,ORB(B19C7F5M6N19) (W107E23) (VTRS) (RPV003) (04 OCT 73)

REFERENCE DATA

SREF =	87.1560 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	-5.000	MACH =	2.500
RN/L =	1.720	ELEVTR =	.000
AILRON =	.000	BDFLAP =	.000
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 2/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.316	15.506	-5.17690	.46984	.09676	-.03565	.00655	.00198	.07426	.42618	.21884	1.95762
.316	20.919	-5.18797	.67522	.08823	-.04775	.00766	.00741	.06828	.59921	.32351	1.85222
.092	26.419	-5.19738	.89841	.07893	-.05907	.00802	.01269	.06199	.76950	.47087	1.63398
.316	31.794	-5.19285	1.12195	.07004	-.07196	.00893	.01446	.05658	.91659	.65066	1.40887
.092	37.296	-5.19561	1.36583	.06120	-.09009	.01228	.01141	.06318	1.04945	.87629	1.19761
	GRADIENT	-.00078	.04111	-.00164	-.00244	.00023	.00048	-.00063	.02859	.03016	-.03380

RUN NO. 3/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
63.198	15.503	-5.17982	.47278	.09685	-.03562	.00656	.00185	.07586	.42959	.21969	1.95587
62.079	20.918	-5.19104	.67556	.08808	-.04835	.00770	.00728	.07004	.59919	.32548	1.85357
62.526	26.313	-5.19947	.89495	.07881	-.05851	.00803	.01227	.06381	.76724	.46744	1.64136
62.974	31.801	-5.19880	1.12521	.06969	-.07184	.00893	.01418	.05933	.91788	.65213	1.40967
63.421	37.285	-5.20422	1.36245	.06116	-.08864	.01211	.01084	.06834	1.04697	.87400	1.19791
	GRADIENT	-.00104	.04091	-.00165	-.00238	.00023	.00046	-.00047	.02831	.03007	-.03601

RUN NO. 4/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
227.005	15.495	-5.18127	.47451	.09694	-.03645	.00648	.00178	.07662	.43038	.22005	1.95609
225.214	20.910	-5.18946	.67674	.08752	-.04856	.00771	.00734	.06910	.60093	.32528	1.84784
225.886	26.361	-5.19991	.89760	.07815	-.05999	.00811	.01242	.06267	.76936	.46857	1.64238
226.781	31.779	-5.19895	1.11521	.06965	-.06942	.00860	.01364	.06052	.91134	.64652	1.40960
224.991	37.321	-5.20667	1.36375	.06117	-.08901	.01164	.01050	.07018	1.04744	.87546	1.19644
	GRADIENT	-.00111	.04069	-.00164	-.00231	.00021	.00043	-.00039	.02831	.02999	-.03519

OA-79, UPWT1043,ORB(B19C7F5M6N19) (W107E23) (VTR5) (RFV002) (24 OCT 79)

REFERENCE DATA

SREF =	87.1563 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	.000	MACH =	2.500
RN/L =	1.720	ELEVTR =	.000
AILRON =	.000	RDFLAP =	.000
PUCFUR =	40.000	PUCDER =	.000

RUN NO. 5/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.092	15.527	-.00164	.47137	.09790	-.03230	-.00016	-.00059	.00213	.42796	.22059	1.94082
.092	20.895	-.00297	.67063	.08935	-.04267	.00013	-.00138	.00453	.59464	.32265	1.84298
.092	26.368	-.00427	.89304	.08003	-.05537	.00028	-.00184	.00624	.76459	.45835	1.66857
.092	31.784	-.01024	1.12206	.06794	-.07040	.00019	-.00234	.00998	.91801	.64875	1.41504
.092	37.286	-.01660	1.36623	.05836	-.08877	-.00074	-.00131	.01031	1.09164	.87419	1.24812
	GRADIENT	-.00068	.04120	-.00185	-.00259	-.00002	-.00004	.00040	.02887	.03003	-.03500

RUN NO. 6/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
69.464	15.498	.00041	.47112	.09778	-.03227	-.00015	-.00066	.00131	.42786	.22011	1.94387
51.114	20.901	-.00336	.67079	.08942	-.04246	.00007	-.00124	.00441	.59466	.32282	1.84210
60.289	26.341	-.00419	.89442	.07923	-.05575	.00037	-.00182	.00616	.76840	.46786	1.63979
61.408	31.783	-.01022	1.12582	.06787	-.07054	.00001	-.00237	.01003	.91915	.64962	1.41553
65.884	37.295	-.01666	1.36685	.05791	-.08869	-.00097	-.00134	.01042	1.05228	.87427	1.20351
	GRADIENT	-.00075	.04121	-.00186	-.00259	-.00003	-.00005	.00044	.02888	.03003	-.03502

RUN NO. 7/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
223.200	19.492	.00184	.46778	.09781	-.03171	-.00016	-.00060	.00050	.42466	.21921	1.93725
210.949	20.914	-.00225	.67208	.08962	-.04271	.00008	-.00151	.00445	.59615	.32269	1.84748
214.249	26.380	-.00660	.89145	.07753	-.05476	-.00013	-.00264	.00899	.76417	.46555	1.64145
222.733	31.791	-.01275	1.12064	.06751	-.06897	-.00048	-.00270	.01193	.91695	.64776	1.41556
228.781	37.306	-.01783	1.36680	.05768	-.08880	-.00168	-.00068	.00959	1.05221	.87425	1.20354
	GRADIENT	-.00091	.04122	-.00186	-.00258	-.00007	-.00002	.00047	.02891	.03001	-.03485

OA-79, UPWT1043,ORB(B19C7F5M6N19)(W107E23)(V7R5) (RPV003) (04 OCT 73)

REFERENCE DATA

SREF = 87.1260 SQ.IN. XMRP = 12.5800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
ZREF = 14.0590 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = 5.000 MACH = 2.500
RN/L = 1.720 ELEVTR = .000
AILRON = .000 RDFLAP = .000
RUDFLR = 40.000 RUDDER = .000

RUN NO. 8/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.092	15.480	5.18734	.47203	.09617	-.03723	-.00672	-.00302	-.07149	.42924	.21687	1.96298
.092	20.911	5.19282	.67784	.08685	-.04992	-.00784	-.00905	-.06145	.60219	.32506	1.85402
-.132	26.369	5.19843	.90068	.07868	-.05923	-.00758	-.01495	-.05169	.77181	.47079	1.63971
-.132	31.821	5.19006	1.12707	.06976	-.07167	-.00973	-.01686	-.04393	.92089	.65554	1.40508
-.132	37.282	5.18379	1.36849	.06078	-.09098	-.01256	-.01388	-.04783	1.05204	.83733	1.19917
	GRADIENT	-.00018	.04113	-.00161	-.00237	-.00025	-.00054	.00120	.02870	.03025	-.01837

RUN NO. 9/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
69.243	15.492	5.18590	.47356	.09609	-.03751	-.00679	-.00309	-.07065	.43069	.21908	1.96586
52.009	20.911	5.19283	.67812	.08689	-.04995	-.00767	-.00904	-.06147	.60244	.32319	1.86402
67.450	26.373	5.19693	.89569	.07815	-.05850	-.00799	-.01175	-.04975	.76777	.46788	1.64104
63.198	31.846	5.18959	1.12832	.06911	-.07195	-.00991	-.01674	-.04391	.92206	.65405	1.40969
61.458	37.279	5.18374	1.36643	.06077	-.09073	-.01279	-.01391	-.04753	1.05045	.87600	1.19914
	GRADIENT	-.00014	.04102	-.00162	-.00236	-.00026	-.00054	.00117	.02860	.03018	-.01847

RUN NO. 10/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
223.649	15.480	5.18731	.47197	.09580	-.03720	-.00666	-.00301	-.07148	.42928	.21830	1.96549
218.729	20.888	5.19431	.67486	.08559	-.04826	-.00778	-.00899	-.06228	.59999	.32059	1.87157
225.886	26.366	5.19393	.89258	.07784	-.05746	-.00830	-.01580	-.04876	.76516	.45614	1.64147
229.467	31.802	5.18942	1.12365	.06946	-.07233	-.01026	-.01630	-.04473	.91886	.65117	1.41092
224.544	37.288	5.18425	1.36514	.6076	-.09053	-.01296	-.01421	-.04571	1.04929	.87537	1.19869
	GRADIENT	-.00031	.04099	-.00158	-.00240	-.00028	-.00054	.00127	.02858	.03017	-.01853

OA-7D, UPWT1043,ORB(B19CTF3M6N19) (W107E23) (V7R5) (RPV004) (24 OCT 75)

REFERENCE DATA

SREF =	87.1360 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	-5.000	MACH =	2.500
RN/L =	1.720	ELEVTR =	-20.000
AILRON =	.000	BDFLAP =	-14.250
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 53/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO- .T	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.272	15.431	-5.17364	.41006	.09823	.01041	.00468	.00126	.07425	.36893	.20418	1.80683
.272	21.877	-5.18771	.60489	.08617	.00617	.00560	.00685	.06940	.53447	.29698	1.80516
.272	26.319	-5.19752	.81864	.07574	.00444	.00584	.01209	.06337	.70019	.43585	1.62519
.049	31.774	-5.19785	1.03380	.06392	.00238	.00679	.01361	.06014	.84521	.53870	1.41174
.273	37.259	-5.20409	1.26176	.05228	-.00155	.01084	.01050	.06906	.97259	.80330	1.20784
	GRADIENT	-.00130	.03918	-.00210	-.00051	.00025	.00046	-.00036	.02788	.02767	-.02928

RUN NO. 54/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
9/.051	15.468	-5.17876	.40820	.09824	.01008	.00468	.00112	.07593	.36722	.20359	1.80409
65.618	20.865	-5.18625	.60249	.08595	.00645	.00560	.00691	.06848	.53256	.29469	1.80726
63.137	26.325	-5.19969	.81242	.07529	.00496	.00594	.01211	.06402	.69478	.42778	1.62421
64.723	31.727	-5.19826	1.02481	.06399	.00423	.00661	.01314	.06179	.83602	.59334	1.41255
57.582	37.256	-5.20489	1.25552	.05223	-.00108	.01054	.01058	.06928	.96798	.80129	1.20805
	GRADIENT	-.00125	.03892	-.00210	-.00045	.00025	.00046	-.00037	.02770	.02747	-.02915

RUN NO. 55/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
220.069	15.446	-5.17815	.41162	.09869	.01009	.00467	.00106	.07675	.37047	.20479	1.80959
225.845	20.891	-5.18769	.60653	.08576	.00592	.00569	.00686	.06937	.53658	.29540	1.81885
225.398	26.320	-5.19809	.81814	.07481	.00448	.00602	.01224	.06327	.70016	.42980	1.62962
225.175	31.775	-5.19979	1.03264	.06413	.00423	.00624	.01314	.06208	.84411	.59828	1.41139
224.727	37.262	-5.20359	1.26196	.05227	-.00005	.00968	.01020	.06945	.97272	.80567	1.20755
	GRADIENT	-.00115	.03901	-.00210	-.00040	.00019	.00045	-.00040	.02774	.02759	-.02939

DATE 09 OCT 79 TABULATED SOURCE DATA, LARC UPWT 1043 (OA-79)

OA-79, UPWT1043,ORB(B19C7P3M6N19)(W20TE23)(V785) (PPV003) (04 OCT 79)

REFERENCE DATA

SREF =	87.1561 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	.000	MACH =	2.500
RN/L =	1.720	ELEVTR =	-20.000
AILRON =	.000	DOFLAP =	-14.250
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 56/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.277	15.469	.01912	.41016	.09881	.01325	-.00015	-.00008	.00036	.36903	.20434	1.80592
.277	20.894	.01575	.60358	.08705	.01014	.00007	-.00080	.00359	.53277	.29858	1.78393
.033	26.364	.01517	.81478	.07533	.00688	.00028	-.00156	.00557	.69659	.42932	1.62255
.033	31.784	.01133	1.03089	.06137	.00406	.00012	-.00183	.00786	.84398	.59515	1.41779
.033	37.230	.00795	1.25832	.04856	-.00167	-.00077	-.00034	.00582	.97220	.79397	1.22467
	GRADIENT	-.00049	.03903	-.00231	-.00066	-.00002	-.00003	.00028	.02790	.02719	-.02365

RUN NO. 57/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
62.711	15.481	.02107	.40767	.09832	.01322	-.00017	-.00015	-.00040	.35664	.20337	1.80101
62.712	20.983	.01840	.60621	.08664	.00960	.00017	-.00099	.00273	.53498	.29798	1.79528
62.488	26.398	.01573	.81436	.07466	.00743	.00019	-.00170	.00561	.69629	.42895	1.62322
63.389	31.743	.01121	1.02783	.06146	.00484	-.00012	-.00187	.00802	.84178	.59372	1.41345
63.159	37.243	.00741	1.25898	.04854	-.00117	-.00113	-.00025	.00589	.97287	.80057	1.21529
	GRADIENT	-.00064	.03913	-.00230	-.00062	-.00004	-.00002	.00033	.02799	.02743	-.02849

RUN NO. 58/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
226.743	15.458	.02265	.41009	.09855	.01267	-.00007	-.00007	-.00132	.35899	.20429	1.77524
226.742	20.905	.01725	.60267	.08672	.01014	.00011	-.00073	.00272	.53296	.29505	1.79715
226.294	26.336	.01581	.80969	.07490	.00868	-.00047	-.00227	.00674	.69242	.42653	1.62414
226.071	31.779	.01018	1.02472	.06156	.00523	-.00087	-.00217	.00913	.83877	.59186	1.41717
225.622	37.221	.00311	1.25520	.04866	-.00160	-.00163	-.00018	.00780	.97009	.79801	1.21594
	GRADIENT	-.00085	.03884	-.00230	-.00062	-.00008	-.00003	.00045	.02774	.02727	-.02870

OA-73, UPWT1043,OFF(E19C7F5W6N19) (W107EZ5) (VTRS) (FPV006) (24 OCT 73)

REFERENCE DATA

SREF = 67.1565 SQ.IN. XMRP = 12.5800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0500 INCHES ZMRP = 6.0000 INCHES
SCALE = .0155

PARAMETRIC DATA

BETA = 5.000 MACH = 2.5[illegible]
RN/L = 1.720 ELEVTR = -20.000
AILRON = .000 EDFLAP = -14.250
RUDFLR = 40.000 RUDDER = .000

RUN NO. 59/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.276	15.449	5.18712	.40943	.09861	.00682	-.00585	-.00128	-.07508	.36837	.25411	1.[illegible]
.276	20.868	5.19040	.60615	.08584	.00496	-.00574	-.00722	-.06419	.53581	.29615	1.[illegible]
.052	26.337	5.19911	.81788	.07529	.00262	-.00591	-.01351	-.05512	.69974	.42708	1.[illegible]
.052	31.772	5.19211	1.03304	.06386	.00239	-.00821	-.01495	-.04900	.84451	.59605	1.[illegible]
.052	37.228	5.18246	1.25815	.05301	-.00298	-.01138	-.01212	-.03374	.96972	.80338	1.[illegible]
	GRADIENT	-.00014	.03901	-.00208	-.00048	-.00028	-.00054	.00117	.02775	.02795	-.[illegible]

RUN NO. 60/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
69.159	15.452	5.18775	.41087	.09872	.00858	-.00513	-.00142	-.07555	.36972	.25452	1.[illegible]
67.187	20.878	5.19040	.60597	.08578	.00495	-.00574	-.00721	-.06418	.53561	.29611	1.[illegible]
61.368	26.349	5.19465	.81638	.07484	.00393	-.00618	-.01423	-.05151	.69935	.42941	1.[illegible]
60.697	31.778	5.19153	1.03120	.06347	.00153	-.00821	-.01476	-.04900	.84519	.59772	1.[illegible]
62.711	37.222	5.18237	1.25485	.05288	-.00245	-.01132	-.01211	-.03371	.96724	.80118	1.[illegible]
	GRADIENT	-.00018	.03882	-.00209	-.00047	-.00027	-.00053	.00117	.02753	.02744	-.[illegible]

RUN NO. 61/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
228.534	15.454	5.18568	.41087	.09854	.00966	-.00508	-.00135	-.07421	.36975	.25445	1.[illegible]
227.862	20.895	5.19107	.60901	.08532	.00496	-.00596	-.00735	-.06418	.53553	.29691	1.[illegible]
226.296	26.309	5.19514	.81114	.07498	.00524	-.00657	-.01441	-.05132	.69358	.42572	1.[illegible]
224.282	31.803	5.18645	1.03241	.06386	.00113	-.00874	-.01439	-.04782	.84375	.59435	1.[illegible]
226.072	37.214	5.18035	1.25557	.05302	-.00275	-.01153	-.01206	-.03983	.96785	.80158	1.[illegible]
	GRADIENT	-.00028	.03882	-.00207	-.00053	-.00029	-.00052	.00121	.02759	.02748	-.[illegible]

OA-73, UPWT1043,OFB(B19C7F3M6N19) (W107E23) (VTR5) (RPV007) (04 OCT 73)

REFERENCE DATA

SREF = 87.1560 SQ.IN. XMRP = 12.5800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0300 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = -5.000 MACH = 2.500
RN/L = 1.720 ELEVTR = -40.000
AILRON = .000 BDFLAP = -16.000
RUDFLR = 40.000 SPDBRK = .000

RUN NO. 22/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
1.009	15.452	-5.17981	.38386	.10826	.02544	.00281	-.00052	.08074	.34114	.20662	1.65110
.784	20.672	-5.19152	.58726	.09611	.02056	.00415	.00567	.07320	.51448	.29973	1.71649
.561	26.362	-5.20131	.79555	.08583	.02527	.00480	.01145	.06644	.67471	.43024	1.56820
.785	31.733	-5.19872	1.01038	.07714	.02184	.00573	.01311	.06166	.81876	.59774	1.37157
.568	37.234	-5.25368	1.23557	.06586	.02254	.00913	.01044	.05995	.94298	.80005	1.17978
	GRADIENT	-.00101	.03357	-.00191	-.00010	.00026	.00054	-.00065	.02774	.02729	-.02374

RUN NO. 23/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
67.695	15.477	-5.17869	.38697	.10812	.02490	.00218	-.00031	.07976	.34409	.20748	1.65838
63.891	20.871	-5.19249	.58632	.09559	.01995	.00407	.00564	.07455	.51293	.29820	1.72239
63.891	26.335	-5.20325	.79754	.08519	.01969	.00476	.01152	.06759	.67638	.42935	1.57530
63.667	31.758	-5.19812	1.01040	.07657	.02152	.00554	.01294	.05160	.81882	.59532	1.37175
63.891	37.264	-5.20322	1.23237	.06551	.02168	.00868	.01025	.06302	.94112	.79832	1.17879
	GRADIENT	-.00100	.03883	-.00191	-.00009	.00025	.00052	-.00062	.02752	.02719	-.02479

RUN NO. 24/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
225.683	15.481	-5.17990	.38317	.10814	.02539	.00280	-.00052	.08060	.34043	.20649	1.64857
229.683	20.857	-5.19203	.58465	.09510	.01956	.00407	.00553	.07411	.51249	.29772	1.72139
227.255	26.298	-5.20248	.79254	.08482	.02058	.00480	.01127	.06759	.67292	.42717	1.57531
226.802	31.732	-5.19382	1.00457	.07669	.02226	.00512	.01274	.06282	.81407	.59559	1.37145
224.118	37.252	-5.25494	1.22783	.06550	.02209	.00825	.00961	.07130	.93769	.79535	1.17834
	GRADIENT	-.00107	.03876	-.00191	-.00007	.00022	.00050	-.00065	.02749	.02711	-.02287

OA-75, UPWT1043,OFB(S19C7F9W6N19)(W30TE23)(V7R5) (PRVIOS: 04 OCT 73 0)

REFERENCE DATA

SREF = 87.1560 SQ.IN. XMRP = 12.5830 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0000 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = .000 MACH = 2.500
RN/L = 1.720 ELEVTR = -40.000
AILRON = .000 BDFLAP = -14.250
FLDFLP = 40.000 RUDDR = .000

RUN NO. 28/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.339	15.494	.01411	.38260	.10758	.02794	.00019	.00005	.00249	.34301	.20589	1.65575
.338	21.821	.01849	.57740	.09638	.02398	.00042	-.00082	.00231	.55544	.29333	1.72845
.338	26.297	.01891	.78575	.08574	.02407	.00052	-.00138	.00242	.66644	.42497	1.56820
.336	31.788	.01407	1.00207	.07430	.02286	.00028	-.00138	.00263	.81269	.59102	1.37487
.112	37.212	.00770	1.22578	.06201	.02052	-.00035	-.00048	.00622	.97971	.79795	1.18719
	GRADIENT	-.00032	.03691	-.00207	-.00029	-.00002	-.00007	.00020	.03769	.03695	-.02355

RUN NO. 29/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
64.339	15.441	.01774	.38613	.10763	.02752	[illegible]16	.00012	.00157	.34354	.20655	1.66320
62.771	20.892	.02170	.58209	.09592	.02432	[illegible]4	-.00067	.00049	.55361	.29719	1.71477
63.442	26.277	.01337	.78633	.08514	.02406	[illegible]	-.00179	.00691	.66739	.42445	1.57255
63.890	31.787	.01049	1.00175	.07440	.02421	[illegible]	-.00142	.00742	.81231	.59199	1.37482
64.114	37.198	.00558	1.22515	.06229	.02074	[illegible]	-.00145	.00719	.97203	.79731	1.18717
	GRADIENT	-.00059	.03855	-.00205	-.00024	[illegible]	-.00003	.00033	.03742	.03526	-.02275

RUN NO. 30/ 0 RN/L = 1.72 GRADIENT [illegible]/L = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
228.593	15.489	.01724	.38599	.10761	.02734	.00020	.00019	.00071	.34325	.20679	1.66009
227.474	20.841	.01848	.57769	.09583	.02401	.00045	-.00081	.00231	.55393	.29579	1.71477
225.012	26.368	.01456	.78733	.08494	.02484	.00025	[illegible]29	.00697	.66769	.42579	1.56917
225.450	31.749	.00795	.99791	.07484	.02514	-.00080	[illegible]79	.00929	.80931	.59974	1.37447
227.697	37.177	.00144	1.22475	.06214	.02117	-.00127	[illegible]73	.00802	.98831	.79857	1.18782
	GRADIENT	-.00078	.03864	-.00206	-.00021	-.00002	[illegible]4	.00044	.03751	.03699	-.02254

OA-7D, UPWI1043,ORB(B19C7F5M6N19) (W107E23) (V7R5) (RPV009) (04 OCT 73)

REFERENCE DATA

SREF =	87.1560 SQ.IN.	XMRP =	12.5800 INCHES
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES
SCALE =	.0150		

PARAMETRIC DATA

BETA =	5.000	MACH =	2.500
RN/L =	1.720	ELEVTR =	-40.000
AILRON =	.000	BDFLAP =	-14.250
PUSFLR =	40.000	RUDDER =	.000

RUN NO. 25/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.562	15.461	5.18336	.38041	.10932	.02417	-.00258	.00025	-.07650	.33759	.20697	1.63221
.338	20.849	5.19438	.58186	.09545	.01891	-.00367	-.00569	-.06927	.50979	.29628	1.72063
.338	26.283	5.20091	.78903	.08564	.01954	-.00425	-.01277	-.05753	.66954	.42618	1.57102
.115	31.732	5.19362	1.00575	.07626	.02020	-.00616	-.01395	-.05171	.81529	.59383	1.37294
.114	37.268	5.18778	1.22621	.06604	.02018	-.00916	-.01162	-.05435	.93586	.79508	1.17705
	GRADIENT	.00014	.03882	-.00194	-.00012	-.00029	-.00059	.00113	.02756	.02707	-.02313

RUN NO. 26/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
63.892	15.423	5.18338	.38035	.10926	.02416	-.00261	.00025	-.07649	.33760	.20647	1.63509
63.893	20.890	5.19437	.58164	.09509	.01891	-.00364	-.00569	-.06925	.50950	.29624	1.71990
63.667	26.292	5.19744	.78760	.08528	.02029	-.00454	-.01329	-.05482	.66835	.42532	1.57140
63.221	31.763	5.19307	1.00415	.07599	.02040	-.00652	-.01366	-.05165	.81377	.59320	1.37183
63.892	37.249	5.18661	1.22306	.06615	.02068	-.00940	-.01138	-.05429	.93366	.79260	1.17767
	GRADIENT	.00909	.03867	-.00193	-.00010	-.00030	-.00058	.00114	.02745	.02697	-.02318

RUN NO. 27/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
227.027	15.453	5.18889	.37843	.10874	.02447	-.00260	.00056	-.07992	.33576	.20568	1.63244
224.789	20.865	5.19282	.58005	.09482	.01860	-.00371	-.00576	-.06835	.50924	.29520	1.72166
226.579	26.313	5.19495	.78558	.08517	.02104	-.00483	-.01359	-.05297	.66544	.42457	1.55969
226.579	31.730	5.19190	.99886	.07625	.01997	-.00702	-.01364	-.05150	.80947	.59017	1.37158
225.237	37.215	5.18252	1.22067	.06653	.02083	-.00972	-.01176	-.05150	.93188	.79125	1.17773
	GRADIENT	-.00025	.03868	-.00189	-.00011	-.00032	-.00060	.00135	.02746	.02697	-.02318

REFERENCE DATA

SREF =	87.1560 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0550 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	-5.000	MACH =	4.670
RN/L =	1.720	ELEVTR =	.000
AILRON =	.000	BDFLAP =	.000
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 11/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.315	15.839	-5.08271	.32375	.06636	-.01582	.00621	.00150	.05878	.29525	.15274	1.93292
.315	20.965	-5.08562	.50424	.06263	-.01941	.00729	.00414	.05610	.44697	.23905	1.87581
.315	26.212	-5.08635	.70514	.05974	-.02603	.00811	.00604	.05301	.60624	.36505	1.66069
.315	31.460	-5.08858	.92448	.05649	-.03824	.00925	.00638	.05451	.75911	.53067	1.43047
.315	36.708	-5.09062	1.15703	.05287	-.05577	.01149	.00607	.05577	.89598	.73399	1.22070
	GRADIENT	-.00038	.03990	-.00063	-.00189	.00024	.00022	-.00015	.02696	.02787	-.03583

RUN NO. 12/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
70.359	15.827	-5.08425	.32276	.06579	-.01585	.00608	.00137	.06041	.29258	.15132	1.93348
69.463	26.188	-5.08641	.70221	.05926	-.02551	.00811	.00605	.05306	.60397	.36357	1.66351
70.359	31.412	-5.08859	.91857	.05587	-.03516	.00890	.00634	.05440	.75483	.52643	1.43385
70.582	36.729	-5.09058	1.15412	.05212	-.05430	.01111	.00603	.05582	.89382	.73198	1.22111
	GRADIENT	-.00033	.03957	-.00065	-.00177	.00025	.00023	-.00023	.02892	.02727	-.03474

RUN NO. 13/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
162.556	15.738	-5.08275	.32294	.06643	-.01531	.00615	.00150	.05882	.29281	.15153	1.93250
163.699	20.951	-5.08570	.50117	.06253	-.01889	.00735	.00413	.05615	.44558	.23760	1.87570
163.676	26.206	-5.08784	.69906	.05914	-.02512	.00760	.00586	.05466	.60109	.36177	1.66155
163.229	31.456	-5.09004	.91828	.05590	-.03525	.00860	.00619	.05596	.75416	.52689	1.43134
162.781	36.694	-5.09056	1.15096	.05203	-.05277	.01078	.00599	.05587	.89180	.72947	1.22253
	GRADIENT	-.00038	.03955	-.00068	-.00174	.00020	.00021	-.00012	.02874	.02757	-.03557

DATE 04 OCT 79 TABULATED SOURCE DATA, LARC UPWT 1043 (OA-79)

OA-79, UPWT1043,ORB(EI9C7F5M6N19) (W107E23) (V7R5) (RPV011) (04 OCT 79)

REFERENCE DATA

SREF = 67.1560 SQ.IN. XMRP = 12.5800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0300 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = .000 MACH = 4.600
RN/L = 1.720 ELEVTR = .000
AILRON = .000 EDFLAP = .000
RUDFLR = 40.000 RUDDER = .000

RUN NO. 14/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.317	15.748	-.00260	.32587	.06656	-.01578	.00015	-.00041	.00335	.29090	.15065	1.93098
.317	20.960	-.00513	.49917	.06249	-.01862	-.00001	-.00060	.00616	.44580	.23687	1.87959
.094	26.210	-.00624	.70332	.05937	-.02593	.00017	-.00122	.00866	.60479	.36369	1.66199
.094	31.461	-.00691	.92514	.05537	-.03777	.00004	-.00092	.00867	.76023	.53008	1.43419
.317	36.743	-.01042	1.15800	.05184	-.05579	-.00023	-.00078	.01046	.89692	.73430	1.22147
	GRADIENT	-.00033	.04001	-.00068	-.00189	-.00001	-.00002	.00032	.02911	.02783	-.03541

RUN NO. 15/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
71.137	15.737	-.00256	.32094	.06615	-.01475	.00004	-.00042	.00332	.29097	.15071	1.93063
71.480	20.964	-.00458	.50224	.06243	-.01807	.00005	-.00084	.00617	.44666	.23798	1.87685
72.398	26.186	-.00623	.70045	.05921	-.02546	-.00005	-.00125	.00869	.60243	.36223	1.66309
64.766	31.447	-.00738	.92252	.05516	-.03735	-.00040	-.00071	.00864	.75824	.52835	1.43510
65.214	36.707	-.01144	1.15491	.05142	-.05532	-.00067	-.00030	.01039	.89517	.73153	1.22369
	GRADIENT	-.00039	.03984	-.00070	-.00192	-.00004	.00001	.00032	.02899	.02771	-.03541

RUN NO. 16/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
161.867	15.758	-.00205	.32083	.06600	-.01474	.00010	-.00067	.00349	.29086	.15064	1.93082
163.453	20.961	-.00442	.49947	.06215	-.01768	-.00055	-.00089	.00614	.44419	.23671	1.87648
164.372	26.190	-.00762	.70319	.05915	-.02497	-.00029	-.00138	.01020	.60490	.36343	1.66443
164.372	31.425	-.00886	.92256	.05528	-.03739	-.00064	-.00085	.01023	.75841	.52816	1.43589
164.796	36.744	-.01134	1.15761	.05116	-.05483	-.00089	-.00031	.01032	.89700	.73353	1.22285
	GRADIENT	-.00044	.03999	-.00070	-.00191	-.00004	.00001	.00034	.02911	.02781	-.03542

RUN NO. 17/ 0 RN/L = 1.72 GRADIENT INTERV[illegible] = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
397.752	15.765	-.00351	.32088	.06593	-.01479	-.00009	-.00081	.00497	.29090	.15063	1.93121
413.416	20.961	-.00588	.49937	.06212	-.01773	-.00074	-.00103	.00771	.44410	.23665	1.87661
420.577	26.199	-.00701	.70027	.05880	-.02350	-.00072	-.00168	.01028	.60237	.36192	1.66439
440.046	31.398	-.00931	.91656	.05482	-.03649	-.00136	-.00066	.01025	.75579	.52430	1.43777
446.983	36.750	-.01286	1.15191	.05084	-.05399	-.00140	-.00049	.01203	.89255	.72936	1.22375
	GRADIENT	-.00042	.03968	-.00072	-.00185	-.00006	.00002	.00032	.02887	.02762	-.03543

OA-79, UPWT1043,ORB(B19C7F3W6N19)(W107E23)(VTR5) (PPV012) (04 OCT 73)

REFERENCE DATA

SREF = 87.1560 SQ.IN. XMRP = 12.5800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0500 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = 5.000 MACH = 4.600
RN/L = 1.720 ELEVTR = .000
AILRON = .000 DGFLAP = .000
FUDFLR = 40.000 RUDDER = .000

RUN NO. 18/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.317	15.774	5.08951	.32199	.06684	-.01681	-.00374	-.00282	-.05202	.29189	.15185	1.92168
.317	20.948	5.08834	.50061	.06313	-.02097	-.00707	-.00543	-.04537	.44495	.23794	1.87005
.317	26.229	5.08632	.70158	.06015	-.02700	-.00807	-.00748	-.03910	.60276	.36405	1.65580
.094	31.455	5.08410	.92091	.05664	-.03866	-.00970	-.00750	-.03707	.75602	.52888	1.42948
.094	36.800	5.08192	1.14728	.05205	-.05592	-.01117	-.00831	-.03445	.88748	.72693	1.21750
	GRADIENT	-.00037	.03941	-.00069	-.00183	-.00026	-.00025	.00083	.02859	.02731	-.03517

RUN NO. 19/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
58.277	15.724	5.08901	.31911	.06635	-.01633	-.00397	-.00259	-.05208	.28913	.15054	1.92067
60.515	20.950	5.08839	.50052	.06279	-.01995	-.00725	-.00544	-.04539	.44497	.23759	1.87293
63.424	26.183	5.08638	.69927	.05995	-.02655	-.00835	-.00751	-.03911	.60111	.36226	1.65935
66.333	31.442	5.08306	.91775	.05640	-.03815	-.00972	-.00789	-.03534	.75358	.52684	1.43036
67.900	36.698	5.08039	1.14747	.05235	-.05586	-.01113	-.00843	-.03283	.88875	.72770	1.22152
	GRADIENT	-.00043	.03955	-.00066	-.00186	-.00024	-.00027	.00093	.02875	.02753	-.03512

RUN NO. 20/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
163.231	15.734	5.08914	.31915	.06650	-.01535	-.00629	-.00261	-.05215	.28916	.15055	1.92064
162.113	20.960	5.08695	.50044	.06256	-.02001	-.00747	-.00558	-.04585	.44487	.23760	1.87237
164.350	26.183	5.08436	.69889	.05947	-.02659	-.00858	-.00740	-.03758	.60093	.36175	1.66120
166.588	31.428	5.08151	.91528	.05620	-.03769	-.00980	-.00803	-.03571	.73170	.52521	1.43125
167.483	36.664	5.08043	1.14796	.05224	-.05588	-.01130	-.00845	-.03283	.88964	.72738	1.22337
	GRADIENT	-.00044	.03962	-.00067	-.00189	-.00024	-.00027	.00093	.02882	.02756	-.03513

OA-7D, UPWT1043,ORB(B19C7F5M6N19)(W107E23)(VTR5) (RPV313) (04 OCT 73)

REFERENCE DATA

SREF = 87.1560 SQ.IN. XMRP = 12.5800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0300 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = -5.000 MACH = 4.600
RN/L = 1.720 ELEVTR = -27.000
AILRON = .000 BDFLAP = -14.250
RUDFLR = 40.000 RUDDER = .000

RUN NO. 44/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.042	15.792	-5.06246	.29291	.06813	.00935	.00480	.00065	.05912	.26331	.14327	1.81254
-.182	20.954	-5.06463	.45942	.06399	.01600	.00606	.00385	.05501	.40611	.22412	1.81201
-.181	26.231	-5.06699	.64901	.06036	.01865	.00665	.00559	.05371	.55587	.34071	1.63092
.042	31.426	-5.06796	.85337	.05561	.02000	.00761	.00601	.05371	.69919	.49240	1.41999
.042	36.685	-5.06859	1.07069	.04985	.01852	.00985	.00579	.05378	.82884	.67962	1.21956
	GRADIENT	-.00030	.03732	-.00086	.00043	.00022	.00023	-.00025	.02726	.02550	-.03022

RUN NO. 45/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
69.414	15.743	-5.08810	.29312	.06815	.00934	.00484	.00073	.06073	.26363	.14512	1.81662
71.652	20.957	-5.08521	.46245	.06400	.01549	.00610	.00374	.05654	.40897	.22517	1.81625
72.995	26.212	-5.08608	.64891	.05996	.01863	.00654	.00558	.05369	.55570	.34041	1.63246
69.862	31.459	-5.08899	.85041	.05506	.02147	.00727	.00610	.05527	.69660	.49091	1.41900
66.967	36.702	-5.08978	1.06460	.04945	.01944	.00950	.00588	.05542	.82939	.67591	1.21908
	GRADIENT	-.00033	.03683	-.00088	.00050	.00020	.00024	-.00023	.02686	.02532	-.03038

RUN NO. 46/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
163.401	15.735	-5.08318	.29013	.06791	.00881	.00489	.00073	.06080	.26086	.14402	1.81125
164.968	20.957	-5.08521	.46240	.06400	.01549	.00610	.00374	.05654	.40892	.22515	1.81625
164.744	26.178	-5.08601	.64594	.05954	.02014	.00621	.00555	.05370	.55342	.33940	1.63041
164.072	31.455	-5.08847	.84730	.05450	.02194	.00705	.00582	.05538	.69435	.48863	1.42102
162.954	36.702	-5.08974	1.06443	.04911	.01940	.00928	.00586	.05542	.82406	.67553	1.21986
	GRADIENT	-.00031	.03687	-.00090	.00053	.00019	.00024	-.00023	.02692	.02550	-.03010

OA-7D, UPWT1043,ORB(B19C7F5M6N19)(W107E23)(V7R5) (RPW014) (04 OCT 73)

REFERENCE DATA

SREF =	87.1560 SQ.IN.	XMRP =	12.5800 INCHES
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES
SCALE =	.0150		

PARAMETRIC DATA

BETA =	.000	MACH =	4.600
RN/L =	1.720	ELEVTR =	-20.000
AILRON =	.000	BDFLAP =	-14.250
RUDFLP =	40.000	FLCSER =	.000

RUN NO. 47/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.042	15.760	-.00086	.29097	.06775	.00910	-.00004	-.00061	.00222	.26163	.14423	1.81397
.042	20.944	-.00352	.46047	.06374	.01492	-.00015	-.00080	.00517	.40726	.22413	1.81707
.042	26.188	-.00536	.64713	.05942	.01898	-.00013	-.00121	.00786	.55447	.33692	1.65602
.042	31.423	-.00628	.85153	.05425	.01908	-.00032	-.00095	.00823	.69837	.49025	1.42456
.042	36.679	-.00903	1.06561	.04879	.01764	-.00061	-.00045	.00859	.82548	.67565	1.22176
	GRADIENT	-.00037	.03709	-.00091	.00041	-.00003	.00000	.00033	.02712	.02541	-.00016

RUN NO. 48/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
66.291	15.759	-.00034	.29094	.06740	.00906	-.00004	-.00087	.00230	.26170	.14398	1.81749
69.861	20.954	-.00289	.46039	.06333	.01486	-.00047	-.00108	.00519	.40728	.22378	1.82003
66.504	26.199	-.00479	.64697	.05934	.01894	-.00029	-.00148	.00792	.55431	.33858	1.63770
68.965	31.445	-.00672	.85151	.05410	.01901	-.00070	-.00073	.00814	.69824	.49037	1.42349
70.532	36.690	-.00947	1.06561	.04839	.01756	-.00111	-.00024	.00853	.82559	.67548	1.22223
	GRADIENT	-.00042	.03707	-.00090	.00044	-.00005	.00003	.00029	.02710	.02541	-.00018

RUN NO. 49/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
163.651	15.759	-.00032	.29093	.06739	.00905	-.00010	-.00087	.00229	.26169	.14387	1.81890
164.746	20.984	-.00288	.45736	.06317	.01637	-.00063	-.00110	.00522	.40441	.22276	1.81543
164.299	26.186	-.00481	.64416	.05880	.01944	-.00040	-.00150	.00796	.55210	.33702	1.63818
164.075	31.420	-.00725	.84845	.05361	.01949	-.00092	-.00050	.00813	.69609	.48805	1.42629
163.628	36.690	-.00999	1.06566	.04805	.01756	-.00117	.00001	.00847	.82582	.67525	1.22300
	GRADIENT	-.00045	.03711	-.00092	.00042	-.00005	.00005	.00029	.02715	.02540	-.00024

OA-75, UPWT1043,OFB(B19C7F5M6N19) (W107E25) (VTR5) (RPV015) (04 OCT 73)

REFERENCE DATA

SREF =	87.1360 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0156				

PARAMETRIC DATA

BETA =	5.000	MACH =	4.600
RN/L =	1.720	ELEVTR =	-20.000
AILRON =	.000	BDFLAP =	-14.250
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 50/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.268	15.765	5.11032	.28907	.06772	.00673	-.00478	-.00232	-.05458	.25980	.14371	1.80781
.044	20.983	5.10963	.45863	.06348	.01493	-.00620	-.00520	-.04778	.40549	.22353	1.81424
.044	28.182	5.10743	.64244	.05976	.01757	-.00737	-.00729	-.04128	.55016	.33708	1.63212
.044	31.438	5.10493	.84398	.05513	.02000	-.00878	-.00732	-.03892	.69133	.48725	1.41890
.044	36.683	5.10206	1.05812	.04937	.01935	-.01008	-.00788	-.03625	.81907	.67169	1.21941
	GRADIENT	-.00041	.03679	-.00086	.00055	-.00025	-.00025	.00087	.02686	.02524	-.03709

RUN NO. 51/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
73.088	15.744	5.11042	.28811	.06756	.00821	-.00516	-.00255	-.05459	.25704	.14266	1.80179
72.102	20.948	5.10870	.45575	.06338	.01371	-.00655	-.00561	-.04611	.40297	.22213	1.81413
66.732	28.234	5.10544	.64245	.05961	.01751	-.00761	-.00718	-.03977	.55010	.33716	1.63158
66.969	31.437	5.10394	.84389	.05510	.01893	-.00879	-.00770	-.03725	.69125	.48712	1.41902
79.983	36.681	5.10107	1.05791	.04935	.01728	-.01009	-.00826	-.03458	.81894	.67153	1.21950
	GRADIENT	-.00045	.03689	-.00085	.00045	-.00023	-.00027	.00093	.02697	.02526	-.02980

RUN NO. 52/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
161.614	15.736	5.10902	.28620	.06763	.00917	-.00550	-.00249	-.05307	.25713	.14271	1.80175
164.076	20.948	5.10870	.45572	.06337	.01371	-.00655	-.00561	-.04610	.40294	.22211	1.81413
162.266	28.182	5.10547	.64248	.05941	.01750	-.00772	-.00718	-.03978	.55035	.33679	1.63411
169.496	31.401	5.10387	.84105	.05470	.01946	-.00874	-.00771	-.03719	.68937	.48489	1.42171
162.266	36.669	5.10104	1.05489	.04913	.01882	-.01014	-.00827	-.03452	.81679	.65939	1.22022
	GRADIENT	-.00040	.03675	-.00087	.00048	-.00022	-.00026	.00088	.02687	.02516	-.03974

OA-7D, UPWT1043,ORB(B19C7F5M6N19)(W107E23)(VTR5) (RPVT18) (04 OCT 73)

REFERENCE DATA

SREF =	87.1560 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	-5.000	MACH =	4.600
RN/L =	1.720	ELEVT# =	-40.000
AILRON =	.000	BDFLAP =	-14.250
FUSFLR =	40.000	FUSSE# =	.000

RUN NO. 31/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.112	15.786	-5.06203	.28109	.07381	.01538	.00458	.00056	.05935	.25046	.14741	1.69912
.112	20.961	-5.06468	.45045	.06879	.02154	.00584	.00382	.05511	.39503	.22537	1.75329
.112	26.207	-5.06616	.63711	.06483	.02580	.00661	.00595	.05224	.54299	.33952	1.59928
.112	31.430	-5.06709	.83972	.06112	.02868	.00758	.00636	.05230	.68379	.48951	1.39689
.112	36.675	-5.06785	1.04975	.05679	.03021	.00960	.00612	.05245	.80798	.67251	1.20143
	GRADIENT	-.00027	.03683	-.00080	.00070	.00023	.00026	-.00032	.02583	.02514	-.02804

RUN NO. 32/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
71.943	15.724	-5.06297	.27833	.07348	.01484	.00453	.00055	.05943	.24800	.14616	1.69681
70.376	20.992	-5.06468	.45052	.06826	.02155	.00585	.00383	.05513	.39617	.22513	1.75975
72.614	26.182	-5.06618	.63434	.06437	.02631	.00650	.00594	.05230	.54086	.33765	1.60197
72.166	31.392	-5.06711	.83309	.06009	.02965	.00720	.00632	.05242	.67985	.48525	1.40105
71.495	36.674	-5.06883	1.04703	.05651	.03173	.00931	.00571	.05418	.80602	.67067	1.20180
	GRADIENT	-.00031	.03671	-.00081	.00080	.00021	.00024	-.00025	.02676	.02503	-.02878

RUN NO. 33/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
165.035	15.756	-5.06355	.28125	.07356	.01537	.00457	.00044	.06097	.25073	.14717	1.70351
164.587	20.931	-5.06468	.45073	.06836	.02158	.00585	.00393	.05513	.39656	.22487	1.76353
164.353	26.172	-5.06617	.63431	.06409	.02630	.00645	.00593	.05228	.54101	.33729	1.60398
163.915	31.426	-5.06913	.83303	.05989	.03066	.00712	.00645	.05393	.67961	.48545	1.39995
163.468	36.674	-5.06927	1.04717	.05618	.03163	.00887	.00592	.05413	.80633	.67049	1.20259
	GRADIENT	-.00030	.03658	-.00083	.00079	.00019	.00026	-.00028	.02664	.02493	-.02912

OA-7D, UPWT1043,ORB(B19C7F5W6N19: (W10TE23) (VTR5) (PPV917) (04 OCT 73)

REFERENCE DATA

SREF =	67.1565 SQ.IN.	XMRP =	12.5800 INCHES		
LREF =	7.1222 INCHES	YMRP =	.0000 INCHES		
BREF =	14.0500 INCHES	ZMRP =	6.0000 INCHES		
SCALE =	.0150				

PARAMETRIC DATA

BETA =	.000	MACH =	4.600
RN/L =	1.720	ELEVTR =	-40.000
AILRON =	.000	BFLAP =	-14.250
RUDFLR =	40.000	RUDDER =	.000

RUN NO. 34/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
-.117	15.751	.01910	.27619	.07371	.01574	.00024	-.00023	.00086	.24581	.14392	1.68461
.107	20.959	.01656	.44861	.06850	.02299	-.00002	-.00043	.00371	.39442	.22444	1.75737
.106	26.196	.01470	.63554	.06426	.02723	.00011	-.00084	.00641	.54190	.33622	1.60223
.106	31.441	.01377	.83755	.05972	.02989	-.00013	-.00058	.00690	.68300	.48757	1.40085
-.118	36.677	.01102	1.05109	.05602	.03052	-.00037	-.00007	.00714	.80953	.67273	1.20352
	GRADIENT	-.00036	.03704	-.00084	.00071	-.00003	.00000	.00030	.02706	.02517	-.02522

RUN NO. 35/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
71.938	15.729	.01910	.27615	.07355	.01574	.00024	-.00023	.00086	.24589	.14583	1.68845
70.371	20.939	.01654	.44867	.06785	.02212	.00004	-.00043	.00372	.39471	.22385	1.76327
69.924	26.181	.01467	.63249	.06369	.02667	.00000	-.00085	.00646	.53958	.33622	1.60461
69.924	31.393	.01325	.83414	.05968	.02932	-.00036	-.00035	.00680	.68094	.48545	1.40271
69.924	36.639	.01045	1.04587	.05517	.03043	-.00071	.00015	.00721	.80542	.66822	1.20552
	GRADIENT	-.00039	.03677	-.00086	.00070	-.00004	.00002	.00030	.02687	.02499	-.02537

RUN NO. 36/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
163.029	15.751	.01908	.27618	.07338	.01576	.00030	-.00025	.00087	.24589	.14559	1.68891
164.358	20.930	.01654	.44871	.06772	.02213	.00004	-.00043	.00372	.39491	.22354	1.76665
163.666	26.161	.01369	.63264	.06384	.02770	-.00002	-.00123	.00812	.53968	.33622	1.60515
163.462	31.428	.01282	.83669	.05942	.02876	-.00063	-.00011	.00665	.68312	.48708	1.40248
163.015	36.674	.00998	1.04808	.05539	.03097	-.00076	.00040	.00708	.80752	.67041	1.20452
	GRADIENT	-.00042	.03691	-.00085	.00071	-.00005	.00003	.00029	.02696	.02510	-.02550

OA-73, UPWT1043,ORB(B19C7F5M6N19)(W107E23)(VTP5) (RPV318) (04 OCT 73)

REFERENCE DATA

SREF = 87.1560 SQ.IN. XMRP = 12.5800 INCHES
LREF = 7.1222 INCHES YMRP = .0000 INCHES
BREF = 14.0370 INCHES ZMRP = 6.0000 INCHES
SCALE = .0150

PARAMETRIC DATA

BETA = 5.000 MACH = 4.600
RN/L = 1.720 ELEVTR = -40.000
AILRON = .000 EDFLAP = -14.250
RUDFLR = 40.000 RUDDER = .000

RUN NO. 37/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
.326	15.749	5.11136	.27720	.07305	.01297	-.00409	-.00128	-.05768	.24697	.14554	1.69688
.102	20.948	5.10972	.44697	.06861	.02056	-.00559	-.00464	-.04926	.39291	.22386	1.75518
.326	26.168	5.10756	.63582	.06439	.02484	-.00681	-.00663	-.04278	.53777	.33597	1.60065
.101	31.435	5.10552	.82960	.06075	.02989	-.00800	-.00691	-.04033	.67618	.48647	1.39371
.101	36.686	5.10204	1.03782	.05598	.03133	-.00949	-.00720	-.03787	.79380	.66491	1.20138
	GRADIENT	-.00044	.03636	-.00080	.00088	-.00024	-.00027	.00093	.02649	.02483	-.02582

RUN NO. 39/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
69.471	15.722	5.10989	.27739	.07291	.01398	-.00422	-.00141	-.05610	.24717	.14532	1.70078
70.142	20.948	5.10824	.44692	.06825	.02053	-.00572	-.00468	-.04787	.39299	.22351	1.75828
69.919	26.177	5.10607	.63079	.06431	.02483	-.00693	-.00677	-.04119	.53772	.33599	1.60043
69.693	31.419	5.10447	.82657	.06052	.03038	-.00796	-.00729	-.03861	.67383	.48253	1.39648
69.695	36.686	5.10106	1.03773	.05630	.03129	-.00920	-.00758	-.03601	.79854	.66511	1.20041
	GRADIENT	-.00041	.03627	-.00078	.00085	-.00023	-.00029	.00094	.02640	.02479	-.02671

RUN NO. 40/ 0 RN/L = 1.72 GRADIENT INTERVAL = -5.00/ 5.00

PO-JET	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
163.010	15.741	5.10990	.27724	.07244	.01399	-.00427	-.00141	-.05611	.24719	.14494	1.70548
163.458	20.943	5.10821	.44405	.06798	.02103	-.00577	-.00469	-.04763	.39042	.22221	1.75698
163.906	26.188	5.10610	.63088	.06425	.02478	-.00705	-.00678	-.04121	.53777	.33507	1.60515
164.352	31.429	5.10295	.82664	.06011	.02932	-.00798	-.00742	-.03701	.67402	.48233	1.39741
164.576	36.650	5.09897	1.03497	.05654	.03177	-.00928	-.00746	-.03442	.79553	.66316	1.20123
	GRADIENT	-.00052	.03629	-.00076	.00084	-.00023	-.00026	.00103	.02642	.02479	-.02617